S. Hrg. 101-585

# NATIONAL ENVIRONMENTAL EDUCATION ACT

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# HEARING

BEFORE THE

## COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS UNITED STATES SENATE

ONE HUNDRED FIRST CONGRESS

SECOND SESSION

ON

## S. 1076

A BILL TO INCREASE PUBLIC UNDERSTANDING OF THE NATURAL ENVIRONMENT AND TO ADVANCE AND DEVELOP ENVIRONMENTAL EDUCATION AND TRAINING

FEBRUARY 1, 1990

Printed for the use of the
Committee on Environment and Public Works

U.S. GOVERNMENT PRINTING OFFICE
28-379 WASHINGTON : 1990

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For sale by the Superintendent of Documents, Congressional Sales Office
U.S. Government Printing Office, Washington, DC 20402

S321-19

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# NATIONAL ENVIRONMENTAL EDUCATION ACT

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THURSDAY, FEBRUARY 1, 1990

U.S. SENATE,
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS,
*Washington, DC.*

The committee met, pursuant to notice, at 10:27 a.m. in room 406, Dirksen Senate Office Building, Hon. Quentin N. Burdick (chairman of the committee) presiding.

Present: Senators Burdick, Reid, Graham, Lieberman, and Jeffords.

## OPENING STATEMENT OF HON. QUENTIN N. BURDICK, U.S. SENATOR FROM THE STATE OF NORTH DAKOTA

Senator BURDICK. Today the Environment Committee will hear testimony on legislation which I have introduced to renew the Federal Government's commitment to environmental education and teaching young people about the environment. I am pleased that the ranking minority member of the committee, Senator Chafee, and 28 other Senators, have joined me in sponsoring this legislation.

In the news we see the many problems facing our environment—oil spills, global warming, ground water contamination, lead in drinking water, and radon gas. These problems can appear to be both complex and formidable.

Education can bring environmental problems into better focus and establish a foundation for long-term solutions. Following the first Earth Day in 1970, Congress passed the National Environmental Education Act.

This bill was signed into law by President Nixon on October 30, 1970. Unfortunately, this act was repealed in 1981. The bill we are considering today renews the Federal Government's commitment to environmental education. The bill directs the Federal Government to work with States, local governments, and nonprofit organizations to promote environmental education.

It establishes a new Office of Environmental Education at the EPA. The bill also provides for the development of environmental education programs, including teacher training and curriculum development.

A major provision of the bill provides for $5 million in grants to schools and nonprofit organizations for environmental education programs and projects. A key goal of this bill is to attract young people to careers in environmental protection. The bill provides for up to 150 summer internships for college students.

In closing, I want to express my gratitude to Senator Gaylord Nelson, the Senate sponsor of the original environmental education legislation. Senator Nelson is here with us today and will be our first witness.

Senator Reid, do you have an opening statement?

## OPENING STATEMENT OF HON. HARRY REID, U.S. SENATOR FROM THE STATE OF NEVADA

Senator **Reid**. Thank you, Mr. Chairman, I do have a short statement.

Mr. Chairman, few Americans now doubt the importance of protecting the environment. Stories on television and in the newspapers about the damage being done to our mountains, forests, rivers, prairies, and wetlands, have generated concern about the future of our land and of our planet. Similar stories about the plight of wildlife have also served to remind many that animals are an important, irreplaceable, part of our world.

All too often, however, concern about both the natural and physical environment has been followed by a sense of frustration. From acid rain to the depletion of the ozone layer to the disposal of waste, the issues of environmental protection appear complex, esoteric, and seemingly without solution. Balancing the rights of animals against the needs of mankind is often equally problemmatic. The bewilderment that follows such confusion frequently turns to resignation. The dejected cry of "What can I do?", or alternatively, "I want to do something but I don't know what" is one that I'm sure we have all heard.

Mr. Chairman, I believe that the way to reduce such bewilderment, to lessen the sense of frustration, is through education. Education can help improve public awareness of the environment. It will make people think about the consequences of throwing their trash onto the highway or into a river. It will make people think about the consequences of mistreating animals, whether domestic or wild.

Education can help us to understand better the issues involved, and provide us with some guidance on how best to protect our environment. What better means is there of guaranteeing the future beauty of our land than by teaching our children to be conscious of the environment, and by encouraging our scholars to seek solutions to those complex, esoteric, and seemingly insoluble problems?

Mr. Chairman, with so much at stake these hearings are very important, and I am looking forward to hearing from our witnesses.

Senator **Burdick**. Senator Nelson, you may begin.

## STATEMENT OF HON. GAYLORD NELSON, COUNSELOR, THE WILDERNESS SOCIETY

Mr. **Nelson**. Mr. Chairman, I apologize for not having a prepared statement.

I have been travelling around the country, speaking about Earth Day, and haven't been in my office to prepare a statement. In fact, today I am heading down to Georgia to talk about Earth Day 1990, and therefore I couldn't prepare a statement, but my remarks will be brief.

Let me say first that I think that the administration of the Environmental Education Act should be housed in the Environmental Protection Agency, where the bill does house it. That agency is where the pulsebeat of environmental concern resides in the Federal Government. That is where the environmental expertise is situated in the Federal Government. The act, in my view, should be administered by an agency whose sole reason for existence specifically revolves around environmental concerns.

We tried administering the 1970 act, which was repealed in 1981, through HEW some 17 to 20 years ago, but it was pretty much lost there in an agency with too many other competing concerns and responsibilities and too few people who understood what the issue was all about. That will not be so at EPA, where there is a critical mass of scientific and technical knowledge. It is the largest association of environmental expertise in the Nation, indeed, any place in the world. It is led by Bill Reilly, who is a qualified and respected environmental leader who has spent many years lecturing and teaching the Nation about these issues. He will be able effectively to work constructively with State and local educational institutions that are responsible for education in those States and localities, and with teachers in their various associations in establishing programs for environmental education.

The opening line in the National Environmental Education Act states the purpose of the act clearly and simply. It states, "A bill to increase the public understanding of the natural environment and to advance and develop environmental education and training."

Put another way, this act will serve as a catalyst for inspiring and supporting the development of environmenal education programs that will imbue the consciousness and intellect of the next generation with a conservation ethic, that will guide their conduct in the making of decisions respecting our relations with nature and the ecosystem that sustains us.

Absent a conservation ethic deeply ingrained in our culture, we will continue in the future—as we have in the past—to destroy enduring natural values for a handful of silver and a mortgage on the future. We simply won't have the vision, let alone the courage, to preserve a liveable habitat for wild creatures, and certainly not one of decent quality for human creatures.

Several years ago Joseph Woodkrutch pretty well summarized the extent of our anemic conservation ethic when he wrote, "If people destroy something replaceable made by mankind, they are called vandals. If they destroy something irreplaceable made by God, they are called developers."

Well, when we think about urgent environmental issues, we rather logically come up with such things as the threat of global warming; pollution of the oceans; acid rain; hazardous wastes; exponential population growth, and many more. There is, however, a compelling—indeed, I think, a conclusive—case to be made that the lack of a pervasive conservation ethic in our culture is by far our most serious conservation problem. Social, political, and economic conduct is powerfully influenced, indeed controlled, by the ethics and mores of society.

Uninhibited exploitation for profit of every single available resource without regard to environmental consequences has been the prevailing ethic of this society since the founding of the Republic. We acted upon the false assumption that our resources were boundless, that we could dissipate and exploit them with lavish extravagance without end. We have uncritically assumed that the vast quantities of toxic chemicals, hazardous wastes, and all other pollutants could be safely vented into the air, dumped into the oceans, lakes, marshes, rivers, and on the land because nature somehow would contain or neutralize them. We did not seem to care or understand that nature's capacity to heal is limited and has been exceeded in vast regions of the earth in many dangerous ways.

We can preserve the integrity of our ecosystem if we will be guided by the sensible philosophy of Aldo Leopold's famous essay, The Land Ethic. That ethic includes everything: air, water, soil, animals, birds, insects, the whole biotic community, and the relation of each part to the others. Man is but one of a multiple of members of that community, and all are important and interdependent.

There are, I think encouraging signs that we as a society are beginning to develop a conservation ethic that will ultimately flower into a powerful social, political, and economic force. The sooner, the better. It is important that we accelerate the process by introducing environmental education into the classroom from the first grade through high school. It should be a mandatory part of the curriculum in every single school in America, as it is now in the State of Wisconsin and a few other States. The Environmental Education Act has a vital role to play in this process.

I have here a guide to curriculum planning in the State of Wisconsin entitled "Environmental Education," put out by the Department of Public Instruction, which I shall not submit to the committee unless you want it for the record. What I will submit for the record is what amounts to a summary.

This is a draft, November 9, 1988, "Criteria (Standards) for Environmental Studies, Minor Preparation Programs for Elementary/Middle Level Teachers." It reads, "Environmental Studies: A professional education program leading to certification in Environmental Studies shall meet the following criteria," and they list a whole series of criteria. "The program shall require a study to develop an understanding of the supplies of and demand for natural resources, principles of their management, and the role of natural resources in economic systems," then they have a listing explaining what that means.

Two, "The program shall require study to develop knowledge of ecological principles and their application to the prevention and solution of environmental problems." And then it says, "Interpretation: Candidates should be able to demonstrate an ability"—and they list the things that they need to be able to communicate to qualify for this certification.

"The program shall require study to develop an understanding of the history and philosophy of interactions between people and the natural and built environments, including the concept of sustainable development."

Five, "The program shall require study of the social, economic, and political implications of continued growth of the human population."

I submit this criteria that is required to qualify for certification in the State of Wisconsin for the record. It is three pages, and I ask that it be printed in the record.

Senator BURDICK. It will be received.

[The draft criteria document follows:]

DRAFT: November 9, 1988

## CRITERIA (STANDARDS) FOR ENVIRONMENTAL STUDIES MINOR PREPARATION PROGRAMS FOR ELEMENTARY/MIDDLE LEVEL TEACHERS

ENVIRONMENTAL STUDIES (Grades 1-9). A professional education program leading to certification in Environmental Studies shall meet the following criteria (standards):

**RECOMMENDED SEMESTER HOURS**

(1) The program shall require study to develop an understanding of the supplies of and demand for natural resources, principles of their management, and the role of natural resources in economic systems. 3

Interpretation: Candidates should be able to demonstrate a basic understanding of:

a. The concept of renewable and nonrenewable resources including air, fuel minerals, nonfuel minerals, plants, soil, water, wildlife, and aesthetic and recreational resources;
b. The economic implications of the current and projected supply of and demand for these resources;
c. Societal management strategies for these resources; and
d. Citizen opportunities for involvement in the management of these resources.

(2) The program shall require study to develop knowledge of ecological principles and their application to the prevention and solution of environmental problems and issues. 3

Interpretation: Candidates should be able to demonstrate an ability to:

a. Communicate major concepts in ecology such as organization (organisms, populations, communities, ecosystems, biomes, etc.), biogeochemical cycles, energy relationships (food chains, food webs, pyramidal relationships, trophic levels, etc.), population dynamics (limiting factors, cycles, etc.), change (succession, etc.);
b. Apply a knowledge of ecological principles to the analysis of environmental issues;
c. Apply a knowledge of ecological principles to predict the consequences of alternative solutions to environmental issues; and
d. Apply a knowledge of ecological principles in the prevention of environmental problems.

**RECOMMENDED SEMESTER HOURS**

3. The program shall require study to develop an understanding of the concept of energy, its transformation in physical systems, the environmental consequences of energy use, and the role of energy in economic systems. — 2 - 3

Interpretation: Candidates should be able to demonstrate a basic understanding of:
a. The nature of energy;
b. Energy states (kinetic and potential) and forms (thermal, radiant, chemical, mechanical, sound, nuclear);
c. Renewable and nonrenewable energy sources;
d. Energy conversion and transfer;
e. Law of conservation of energy and matter (e=mc2);
f. The first and second laws of thermodynamics;
g. Changes in the global energy budget and their potential impacts on life forms;
h. Environmental consequences of energy use; and
i. The economic implications of the current and projected supply of and demand for energy.

4. The program shall require study to develop an understanding of the history and philosophy of interactions between people and the natural and built environments, including the concept of sustainable development. — 2 - 3

Interpretation: Candidates should be able to demonstrate a basic understanding of:
a. The changing relationship over time between humans and nature in hunter-gatherer, agricultural, industrial, current, and emerging societies;
b. The role of humans as members of a living community (e.g., Leopold's Land Ethic); and
c. The global linkages of environmental stress, patterns of economic development, and social and political factors, and the need to address them in a program of sustainable development which meets current needs and aspirations of people without compromising the ability to meet those of the future.

5. The program shall require study of the social, economic, and political implications of continued growth of the human population. — 2 - 3

Interpretation: Candidates should be able to demonstrate a basic understanding of:
a. Human population dynamics;
b. Human population controls - natural and artificial;
c. The relationship between population size, lifestyles, and competition for natural resources; and
d. The impact of competition for and the distribution of natural resources on local, national, and global economics and politics.

SEMESTER HOURS

6. The program shall require study of the relationships between science, technology, society, and the environment. 2 - 3

Interpretation: Candidates should be able to demonstrate a basic understanding of:

a. Technology's increasing potential for both positive and negative impacts on society, e.g., computerized automation produces high quality products but reduces the number of jobs;
b. Technology's increasing potential for both positive and negative impact on natural and built environments, e.g., human-induced climatic change, the nuclear fuel cycle, etc;
c. Society's control over technological development, e.g., society often funds technological developments;
d. Society's influences on and responses to scientific activity, e.g., society often funds scientific research;
e. Technology's role as both a cause and result of scientific activity, e.g., nuclear reactors resulted from scientific activity, and are used in scientific research;
f. Technology as an application of the concepts and principles of science, e.g., vaccines are developed to control disease, thus extending life and contributing to human population growth problems;
g. How historical events have shaped and will continue to shape technology, e.g., World War II and the development of nuclear weapons;
h. The inability of science and technology alone to solve all societal and environmental problems, e.g., provide a pollution-free environment; and
i. How scientific and technological activities are regulated by both societal and individual values, e.g., people patronize fast food restaurants which use a large amount of styrofoam containers.

7. The program shall require study of how people-environment interactions affect physical and mental health. 2 - 3

Interpretation: Candidates should be able to demonstrate a basic understanding of:

a. People-environmental interactions having potential for providing high quality physical and mental health, e.g., backpacking, cross country skiing, nature photography, bird feeding, etc;
b. The human need for beauty in both natural and built environments;
c. The relationships between the arts (visual, performing, literary) and the environment;
d. The potential for direct and indirect detrimental effects on physical well-being of humans by environmental contaminants; and
e. The potential for indirect detrimental effects on the physical and mental well-being of humans when environmental contaminants affect other organisms.

RECOMMENDED
SEMESTER
HOURS

8. The program shall require study in the use of affective educational methods in helping students develop an environmental awareness and sensitivity. 1

Interpretation: Candidates should be able to demonstrate an ability to help students:

a. Perceive and discriminate among environmental stimuli (observe, classify, order, understand spatial relationships);
b. Process, refine and extend perceptions (predict, measure, infer, analyze, interpret, hypothesize, develop mental models);
c. Become sensitive to aesthetic elements of natural and built environments; and
d. Appreciate the interdependence of elements of natural and built environments.

9. The program shall require study in the use of cognitive education methods in helping students to understand how Earth's environment functions and how people and Earth's environment interact. 1

Interpretation: Candidates should be able to demonstrate the ability to help students understand that:

a. Earth's environment operates as a function of its structure and its location in space;
b. Earth's environment is a dynamic, changing macrosystem called the ecosphere;
c. Humans use ecosystems to satisfy basic needs and desires;
d. Humans pervade the ecosphere and exert a special ecological dominance;
e. Ecosystems affect humans; and
f. Complex interactions among human and other ecosystem components occur continuously.

10. The program shall require study of affective educational methods in helping students develop positive environmental attitudes and values. 1

Interpretation: Candidates should be able to use:

a. Current theories of knowledge/attitude/behavior relationships in selecting, developing, and/or implementing a balanced environmental education curriculum which incorporates attitudinal/values education; and
b. Affective education methods and moral reasoning models in planning and implementing instruction in such programs.

11. The program shall require study in the use of methods to help students develop skills needed to investigate and contribute to the resolution of environmental issues. 1

Interpretation: Candidates should be able to:

SEMESTER HOURS

a. Help students in Grades k-3 to develop skills such as:
    - * Research skills (collecting/organizing data, etc.);
    - * Map and globe skills (cardinal directions, basic terminology, etc.);
    - * Literacy skills (reading, writing, etc.);
    - * Interpersonal skills (seeing various points of view, resolving conflict, etc.);
    - * Problem-solving skills (considering alternatives and their consequences, etc.); and
    - * Information gathering and processing skills (those process skills identified in standard 8).

b. Help students in Grades 3-6 to develop skills such as:
    - * Those recommended for Grades k-3;
    - * Communicating, receiving and providing information, ideas and values by listening, speaking, gesturing, reading, writing, and using art forms; and
    - * Working cooperatively with other people.

c. Help students in Grades 6-9 to develop skills such as:
    - * Those recommended for grades K-6;
    - * Identifying issues and analyzing them for their associated value perspectives;
    - * Identifying potential ecological and cultural implications of issue-associated value perspectives;
    - * Using secondary sources of information in investigating issues;
    - * Using primary sources of information in investigating environmental issues;
    - * Analyzing data collected from primary and secondary sources;
    - * Identifying alternative solutions for specific issues and the value perspectives associated with them;
    - * Evaluating alternative solutions for specific issues with regard to their ecological and cultural implications;
    - * Identifying one's own value position related to specific issues and alternative solutions proposed for them; and
    - * Planning individual and/or group citizen action (persuasion, consumerism, political action, legal action, ecomanagement) for the purpose of assisting in the resolution of specific issues.

12. The program shall require study to develop the ability to incorporate the study of the environment and environmental issues into whatever the candidate is certified to teach. 1

Interpretation: Candidates should be able to demonstrate the ability to:

a. Analyze and evaluate a k-12 environmental education curriculum plan;

b. Use methodologies such as outdoor teaching strategies, simulations, case studies, community resource use, and environmental issue investigation, evaluation, and

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action planning; and

c. Identify, evaluate, and use a variety of resources (print, non-print, people, sites, etc.) in planning and implementing instructional activities.

13. The program shall require practical experience in environmental education content, theory, and methodology appropriate to the candidate's certification level. 1

Interpretation: The candidate should experience a minimum of 20 hours in planning, teaching, and evaluating environmental education instruction as part of a supervised pre-studenting teaching, practicum, or student teaching/intern experience.

Mr. **Nelson**. Mr. Chairman, I have one other three-page document which is entitled "Curriculum Plan, Section 121.02(1), Wisconsin Statutes," which starts out saying, "Each school board shall: (k) By September 1, 1988, develop a written, sequential curriculum plan in at least three of the following subject areas: reading, language arts, mathematics, social studies, science, health, computer literacy, environmental education, vocational education, physical education, art and music. The plan shall specify objectives, course content and resources and shall include a program evaluation method," and so forth. I ask that this three-page document be printed at this point in the record.

Senator **Burdick**. It will be received.

[The Curriculum Plan document follows:]

# Curriculum Plan

*Section 121.02(1), Wis. Stats.*

*Each school board shall:*

*(k) By September 1, 1988, develop a written, sequential curriculum plan in at least 3 of the following subject areas: reading, language arts, mathematics, social studies, science, health, computer literacy, environmental education, vocational education, physical education, art and music. The plan shall specify objectives, course content and resources and shall include a program evaluation method.*

*By September 1, 1989, develop a written, sequential curriculum plan in at least 3 additional subject areas specified in subd. 1.*

*By September 1, 1990, develop a written, sequential curriculum plan in all of the remaining subject areas specified in subd. 1.*

# Curriculum Plan

## *Overview*

Standard (k) requires districts to develop, implement, and monitor curriculum plans for 12 subject areas. Areas to be covered include reading, language arts, mathematics, social studies, science, health, computer literacy, environmental education, physical education, art, and music. An additional curriculum plan in vocational education is to be developed for grades 7 through 12.

Curriculum development is important for a number of reasons:

- The need to restructure a traditional subject area in the light of recent research findings or the emerging needs of students.
- Recent local, state, or federal statutory changes such as the passage of graduation requirements or participation in a competency-based testing program.
- The demands for excellence affecting local curriculum.
- The impact of educational technology on local curriculum.
- The need to incorporate equity concepts and multicultural, sex-fair course objectives into a curriculum.

An organized district process of studying, reviewing, developing, and updating curriculum plans helps educators representing the various subject areas to examine over a period of time the appropriateness of the content of each curriculum plan and the effectiveness of instruction in each area.

If program and student objectives have been attained, no unusual curriculum revision may be indicated. However, in no instance should curriculum development stop completely. Even the best of curriculums can profit from continuous examination. New knowledge, improved techniques, changing philosophies, and local priorities make curriculum development a never-ending challenge.

DPI has published guides to curriculum development to provide support and assistance to educators responsible for revising or developing curriculum to meet local needs and aspirations. This includes providing models for improving curriculum and instruction; criteria for content selection; strategies for K-12 articulation, implementation, and evaluation of curriculum; statements of curriculum content for educators, school boards, and the community; and guidelines for preservice teacher education programs.

## *Administrative Rule*

**PI 8.01(2)(k)2.** Each school district board shall develop, adopt, and implement a written school district curriculum plan which includes the following:

a. Kindergarten through grade 12 sequential curriculum plan in each of the following subject areas: reading, language arts, mathematics, social studies, science, health, computer literacy, environmental education, physical education, art, and music; and

b. Grades 7 through 12 sequential curriculum plan in vocational education.

3. Each sequential curriculum plan shall specify objectives, course sequence, course content, resources, and an allocation of instructional time by week, semester, and school term. The school district board shall establish in the school district curriculum plan the allocation of instructional time, by week, semester, and school term, among all subject areas.

4. Each sequential curriculum plan shall include a program evaluation method which provides a systematic, continuous, and objective process of determining whether pupils attain the specified objectives. Components of the sequential curriculum plan shall be monitored continuously, and the overall program evaluation method shall be reviewed at least once every 5 years and revised as appropriate to ensure that pupils meet the curriculum objectives.

5. The school district curriculum plan shall be consistent with the approved education for employment program under ch. PI 26.

6. The school district board shall develop sequential curriculum plans in at least 3 of the subject areas specified in subd. 2 by September 1, 1988; in at least 3 more of the subject areas specified in subd. 2 by September 2, 1989; and in all of the remaining subject areas specified in subd. 2 by September 1, 1990. The computer literacy and environmental education curriculum plans shall be developed as follows:

a. Computer literacy objectives and activities shall be integrated into the kindergarten through grade 12 sequential curriculum plans,

b. Environmental education objectives and activities shall be integrated into the kindergarten through grade 12 sequential curriculum plans, with the greatest emphasis in art, health, science, and social studies education.

## *Definition of Terms*

**Computer literacy.** The ability to use computer programs to assist learning, handling of information, and problem solving and the ability to make informed judgments concerning social and ethical issues involving computers and information systems. (From PI 8.01(2)(k)1.a., Wis. Admin. Code)

**School district curriculum plan.** The composite of the sequential curriculum plans. (From PI 8.01(2)(k)1.b., Wis. Admin. Code)

**Sequential curriculum plan.** An organized set of learning experiences that build upon previously acquired knowledge and skills. (From PI 8.01(2)(k)1.b., Wis. Admin. Code)

Mr. **Nelson**. I will simply conclude, Mr. Chairman, with the observation that I think the most important consequence of passing this act, authored by the Chairman and a number of other members of this committee and the Senate, will be to serve as a catalyst for helping guide and develop good programs for environmental education all over the United States. I think it must ultimately become compulsory in all our schools, although that, of course, is not a responsibility that the Congress would assume.

But you can be very helpful in the educational aspect in convincing the States, the State Departments of Education, and local ones, that this is the direction in which they ought to go. There is a provision in the bill to contract privately with institutions of higher education to develop environmental programs. Models like Wisconsin could be one, but States, municipalities, and school districts can develop a multiplicity of plans and programs to implement environmental education. That very diversity will supply us with lots of information about what is the most effective way to go. This bill can serve that purpose very well.

I congratulate the Chairman and the committee for undertaking to conduct the hearings and address this question which, in my view, is far more important than any other environmental problem that this country faces.

Thank you, Mr. Chairman.

Senator **Burdick**. I want to thank you, Senator.

I would like to call on Senator Reid.

Senator **Reid**. Thank you very much.

I appreciate having just a brief opportunity to comment on your statement and give a brief comment on the hearing generally.

Senator, it's interesting to note how different the youngsters are from my generation. For example, my youngest would never ride in a car without his seat belt being fastened. I don't know if he would ride in a car that didn't have a seat belt in it. He goes so far as to lecture anyone who isn't wearing his seat belt.

The reason for this is one of education. That young man has been educated that seat belts reflect safety, and that's the way that society should be run; namely, everyone riding in a motor vehicle should have a seat belt on.

The term that you've used, "conservation ethic" causes me to reflect back on growing up in a very fragile desert environment. I am embarrased to admit the things that I did as young man growing up in that fragile desert would be frowned upon today. I simply didn't know any better.

I would hope, through the educational program that you suggest and that this bill illustrates, that young people will be as my son is with seat belts; that is, this conservation ethic will be so ingrained in their minds that it will be part of their lives. If I heard you correctly, that's what you were saying.

Mr. **Nelson**. Yes, I agree with you. You have to start in grade school. It has a tremendous impact on young folks, starting in grade school and even earlier, when you discuss these things.

Once upon a time I had a little experience. When I still smoked, years ago, we were on a vacation. My eldest son then was about six, and I tossed a cigarette butt out, and he insisted that we stop the car and pick it up because he had been taught that in the first grade.

We couldn't find it. I promised him we'd stop on the way back from going to the store and find it. We stopped, and I had to cheat a little on him and pull a cigarette out of my pocket and break it in half and step on it and then claim that I had found the butt. But I never threw another one out in front of him, I'll tell you that.

You see, you can't get a society to make tough decisions if they don't understand the importance of making them. The young folks today, the people who were in grade school when I organized Earth Day in 1970, are far better environmentalists—a much higher percentage—than the 20-year-olds or the 25-year-olds were, back 20 years ago. And each generation is getting better. As you understand, in the political system, as a general proposition politicians aren't going to spend all kinds of their reserve on issues in which it is difficult to get the attention and support of the constituency. If you figure that even with a strong educational effort your constituents aren't going to follow you, there are enough other things to do without getting involved in lost causes. But if there is a constituency out there that you know is concerned and demanding that things be done, then it makes it possible to provide leadership and make difficult decisions.

My sole purpose in organizing Earth Day, was to get a huge demonstration that would force the issue into the political dialogue of the country. Well, I think it helped do that, but we still have a long, long way to go. And I think the new generation coming up from our high schools and colleges, has a much stronger commitment, a much better understanding of the issues. So that generation is going to have a much stronger commitment to preserving the integrity of the environment because they understand it better. They understand its importance.

So I think the objective of this bill is a very important one.

Senator BURDICK. Mr. Lieberman.

## OPENING STATEMENT OF HON. JOSEPH I. LIEBERMAN, U.S. SENATOR FROM THE STATE OF CONNECTICUT

Senator LIEBERMAN. Thank you, Mr. Chairman. I do have an opening statement which I would appreciate having included in the record.

[The statement follows:]

### OPENING STATEMENT OF HON. JOSEPH I. LIEBERMAN, U.S. SENATOR FROM THE STATE OF CONNECTICUT

Thank you, Mr. Chairman. It is a testament to your leadership and to the importance of this bill that we have such distinguished witnesses before us today. I'd particularly like to welcome Senator Gaylord Nelson, whose career as a United States Senator and now as Counselor to the Wilderness Society helped to define what we mean now when we talk about environmental protection and conservation. It is particularly fitting that he should speak here today on The National Environmental Education Act, as it is so closely modeled after his own legislation introduced twenty years ago.

A couple of weeks ago I visited with the second-grade classes of Northeast Elementary School in Stamford, Connecticut. I was prepared to answer questions—and I got a lot of them. Most of the questions were very specifically related to larger objectives: "What can I do for Earth Day?" "What can I do to stop global warming?"

"What can I do to clean up Long Island Sound?" "What can I do to save a dolphin's life?"

But before we got to their questions, these second-graders had a few statements of their own to deliver. Eleven year old James Weisberg told me, "You can't throw things out and dump things. If we're not careful, the Earth will turn into nothing, especially the ozone."

These children, under the guidance of their teacher, Eleanor Snow, are quick to get to the heart of the problem. Environmental Protection means Environmental Conservation; it means being "Careful."

That's why I wholeheartedly support the objectives of "The National Environmental Education Act." Creating curriculum and training teachers to carry forth this message of carefulness is imperative, if we as a nation are to begin to change our thinking about our environment and our actions to save it.

I support giving the U.S. Environmental Protection Agency the lead in this because it is already in the position of making "care-taking" its business, enforcing the laws that presently protect the environment.

And EPA's almost certain elevation to Cabinet level will give Mr. Reilly a stronger base from which to deliver his oft-stated message that the United States needs to institute a policy of pollution prevention as much as it needs to enforce present laws.

We are all, as adults, by now familiar with the polls citing an overwhelming willingness to spend more to clean up our natural environment. But children, literally, are much closer to the earth. We can, with the help of The National Environmental Education Act, educate them to better care for the earth in the first place. Through education, new generations can learn how to live on and off the land without contaminating it.

Senator LIEBERMAN. Let me just say a few things. One is to thank you, Mr. Chairman, for your leadership in putting this bill to the top of the agenda of this committee because it goes beyond the particular issues that are being debated today and really tries to guarantee that there will be an enlightened and aggressive constituency of concern and caring for the environment in the years ahead.

It is particularly appropriate, Senator Nelson, that you are here because of all that you've done during your career to instruct us all about what it means to be for environmental conservation and environmental protection.

I know that the legislation that we have before us now is closely modeled on legislation that you introduced 20 years ago, so it is right that you are here.

When I was Attorney General of Connecticut, one of my responsibilities was consumer protection law enforcement. We always said that the best consumer protection is consumer education. Probably, in a fundamental sense, that could be said about this subject area, too, that the best environmental protection is environmental education, which is to say to prepare people to live in a way that requires less enforcement because they understand the importance of caring for the natural environment.

We have to begin with the kids, I agree with you. I spoke at an elementary school in Stamford, Connecticut, a couple of weeks ago. There, the teacher had adopted her own environmental ethic curriculum. They asked me a lot of questions about what they could do on Earth Day and what they could do to stop global warming and what they could do to clean up Long Island Sound. But one of them stood up and, showing me what he learned, said, "You can't throw things out and dump things. If we're not careful, the earth will turn into nothing." Well, I think he got the message, and I hope generations of other American children will get that message if we pass this act.

I wholly support it. I think it's quite appropriate that the EPA take the lead in this because it is already in such a leadership position in helping us protect our environment.

I have just one question to ask you, if I might. I have received letters from a number of organizations which question the definition of "training" and of environmental education in the bill. For instance, community colleges have asked about the possibility of their being able to seek grants to train wastewater treatment plant operators. The American Institute of Architects would like to see the definition of "environment" include built environments that, for instance, might include infrastructure, urban planning, and design.

Apparently there is some thought that PBS might be interested in seeing the language underscore the role of the media in educating the public.

So from your experience, I would be interested in knowing whether you think we ought to stick with a more conventional interpretation of education—that is, generally speaking, education which is conducted by education professionals in the classroom—or ought we open this act to less conventional education?

Mr. NELSON. Well, I thought what you were suggesting—the engineers and the architects—that that is conventional education that is already a part of the curriculum of every higher education institution in the country. I had assumed, at least when I introduced the legislation 20 years ago and looking at this one, that the concept here is to serve as a catalyst to develop educational programs, to educate young people, grade school and high school, to understand what the issue is.

Now, in Wisconsin they are not mandating a particular environmental course. They are mandating that the teachers who teach history or social science or chemistry or what have you include as part of their course an environmental element.

What I think is important about this legislation is that it will serve as a catalyst to create a curriculum that will infuse into the culture and the education of our students an ethic about environment and about the ecosystem in which we live so that they will understand that we are part of it, and that we are only one of the many creatures in it. That's the important part of environmental education. All of the engineering and technical stuff is already taught in the colleges.

I don't think you would want to open this legislation to support already well established programs. You want to help get educational programs going in the primary and secondary schools all over this country. That is the important objective.

Senator LIEBERMAN. Thank you.

Thank you, Mr. Chairman.

Senator BURDICK. Senator Jeffords.

## OPENING STATEMENT OF HON. JAMES M. JEFFORDS, U.S. SENATOR FROM THE STATE OF VERMONT

Senator JEFFORDS. Thank you, Mr. Chairman.

Senator, it is good to see you. I was a great admirer of you back when I was Attorney General, years ago, and when you were a Senator here. I remember a number of the bills you introduced and some that got enacted into law, and it's a pleasure to meet you in person. Thank you for your very thoughtful and provocative statement.

I have a statement, Mr. Chairman, that I would like to place in the record, and just make a couple of points, if that is all right.

Senator **BURDICK**. It will be received without objection.

[The statement follows:]

### OPENING STATEMENT OF HON. JAMES M. JEFFORDS, U.S. SENATOR FROM THE STATE OF VERMONT

Mr. Chairman, I thank you—not only for calling this hearing today on S. 1076, but also for introducing this very important and timely bill. I have chosen to cosponsor this bill along with many of my distinguished colleagues because I believe we must do a better job of educating and training the youth of this great nation to have a better understanding of the natural environment.

Over and over again, environmental studies and reports indicate that we can most effectively enhance environmental protection through education and public awareness. Regulation can only go so far, beyond that we must depend on the individual citizen to modify his behavior. This is particularly true with regard to an issue such as nonpoint source pollution one of the major challenges facing us in the 1990's, which I'll use as an example.

According to the EPA's "Nonpoint Sources Agenda for the Future", nonpoint source problems are the direct result of past and present land-use habits thus are more appropriately handled on the state and local level. The solutions significantly effect the public at-large—requiring an informed public and broad based coalition to support local and state action. The EPA report stresses that you must convince people individually and collectively that there is a problem and a need for action. Public awareness does not just happen. It requires conscious effort. The report states that the Agency will work with states and local governments to improve their capacity to convince the public of the need to change behavior.

I found particularly interesting a statement in the report that said, while raising public awareness is vital to our efforts, it is a "short-term" solution to a long-term problem. In the long run, therefore, we must do a better job of educating people from an early age. I believe that this statement is the crux of the bill before us today. We're talking about cultivating a culture of "stewardship".

In some areas it pays to target resources and efforts towards enforcement of environmental regulations and we will continue to do that. But I believe that we may be able to get a bigger bang for the buck by teaching the public—especially the youth across the country the critical role they can play in protecting and preserving the very valuable resources we are blessed with in the U.S. So many of the environmental problems we face today call for individual action.

Whether its the methods by which we clean our automobile or how we package, recycle or dispose of waste, it is in the hands of our future generations to recognize the impact of their individual actions on natural resources. We must cultivate a culture of responsible treatment of the environment.

Let me shift for a moment to another area that makes environmental education so critical to this nation. I've long been concerned about the declining number of students and teachers entering science and technical careers across this nation. Science and technical training programs are deteriorating in schools from coast to coast. Yet we are entering a time when national and international focus is upon environmental protection which in many cases will require new technology. We won't be competitive in the market place if we fail to prepare our workforce for this increasing reality.

For this reason, I'd like to explore with the Committee and panel members the concept of establishing under this bill, either a scholarship program or a partial cancellation or deferment of loan payments to students—similar to that found under the Peace Corps program. I would focus this program on students choosing technical environmental careers.

I also plan on working with the Committee to ensure that vocational education is eligible for these funds. Vocational education is the program that provides quality education to underserved groups around the country. Many young people have the opportunity to be trained and educated to prepare themselves for tomorrow through vocational education programs. We should be encouraging students that choose vocational programs to focus on environmental careers. Many of these youngsters can be trained through this program to play a critical role in protecting the environment.

Finally, at a time when environmental laws are being amended to include American Indians under EPA's programs—similar to states, I believe they should also be eligible for these funds. Tribes are in the process of establishing environmental programs across the country. Providing educating and training for interested Tribal members who wish to work in these environmental programs is critical to successful program operation. I plan to work with this Committee to open the doors for Tribes to receive these funds.

The recent Environmental Trends Report released by the Council on Environmental Quality stated that:

"The prognosis for improvements in environmental quality and reduction of human health risk is good. Pollution controls and environmental safeguards put into place over the past two decades have resulted in measurable changes in many aspects of the environment. Increased public awareness of environmental risks and hazards and more attention to conservation and protection of available resources have also helped improve the quality of the Nation's environment. But there is still more to do."

Mr. Chairman, I look forward to hearing from our distinguished panel members their perspectives on the provisions of this bill. I hope this hearing will help us to develop an effective environmental education program that can truly cultivate a culture of stewardship amongst our youth.

Senator **JEFFORDS**. Last night we listened to the President talk about two subjects, one was the environment and the other was education. It made me think that in terms of the science and technical goals that the President established, the environment ought to be included in those. I think it is important. We always think in terms of exotic development and technology; on the development of industry and sophisticated machines, but we should also think of it in terms of how to make our society competitive and productive and environmentally sound. I would hope that when we consider those goals and matters, that we do place the environment in there, and that we do some things to try to enhance the ability of young people to get into the technical areas of the environment as well. That includes, perhaps in this bill, a scholarship program or deferment of college loans or even cancellation of them in order to get more people involved and interested in environmental areas.

That also includes vocational education. It is critical that we include and put emphasis on vocational education with environmental aspects, as well as our general education.

I am sure the Chairman would be interested in this, perhaps more than I would for we have a hard time finding any Indians in our State—we have some who believe they are, and I'm sure they are—but it seems to me we should also make these available to the tribes. I think we have not emphasized environmental education within our Indian tribes as much as perhaps we should, to assist them to be able to participate and to assist in these areas.

Those are just a couple of thoughts that I had, Mr. Chairman. I wanted to share them with the committee this morning.

But again, I would like to thank you, Senator, for a very provocative and interesting statement.

Thank you, Mr. Chairman.

Mr. **NELSON**. Maybe it would be helpful if the Indians would share their environmental ethic with us. They did pretty well.

Senator JEFFORDS. I think that's absolutely correct. We could learn a lot. In fact, the more we go forward the more we realize we should go backwards and take a look at what was done in the past, before things all got messed up by us trying to improve things.

Senator BURDICK. Senator Graham.

## OPENING STATEMENT OF HON. BOB GRAHAM, U.S. SENATOR FROM THE STATE OF FLORDIA

Senator GRAHAM. Thank you, Mr. Chairman. I, too, share the enthusiasm for this idea and my respect for Senator Nelson and the leadership that he has provided for this effort.

Our State has had an active environmental education program for a number of years, as have Wisconsin and a number of other States. In the context of the primary responsibility, which States have for education in this country, I think a question that needs to be asked of this legislation is, what is the Federal role? And what methods are going to be utilized in order to carry out that Federal role?

I would like to suggest four Federal roles.

One is a catalytic role; that is, to encourage those States and those higher education institutions and local school agencies that have not seen the importance of environmental education to do so, and to give them some resources with which to get started.

Second is to encourage innovation. Pursuing the line of questions of Senator Lieberman, I would encourage an expansive view of both the words "environment" and "education." Environment certainly should be broad enough to include the concept of the bill as well as the natural environment. One of the speakers today is going to be Mr. Bill Hammond from Fort Myers, Florida, and I remember a day I spent with Bill and some junior high school students as he led us on a tour through downtown Fort Myers, a city that I had known for many years but had never really seen until he caused us to look in a different way at how and why and what the significance of that community's development was. It opened my eyes, and I think it opened the eyes of a lot of 13- and 14-year-olds that day.

Education is more than schools. Schools are a means of achieving education, but education is a broader concept. I would hope that we would use all of the means to educate because we are not talking exclusively about young people. We are educating a whole population that needs to develop that new environmental ethic. So encouraging an innovative and conceptually broad concept of what constitutes environmental education, I think, is a second Federal role.

A third is role models. How can we identify the best practices and accelerate their consideration on a nationwide basis? One of the innovations that I hope Bill might talk about from our Florida experience was a series of mini—M-I-N-I—grants, which in some cases were as small as $50 or $100, made available to a teacher who, with that $50 or $100, could do something that otherwise was beyond their ability. That little bit of recognition and stimulation was a tremendous generator of ideas. I hope that this Federal effort will identify the best practice and help to disseminate it so that those best practices can take seed in as many places as possible.

And finally, Mr. Chairman—I apologize for the length of my remarks—I think there is a role in environmental education for Federal resources specifically. It was interesting that in the President's speech last night, he alluded to a recent experience that he had had in the Florida Everglades with a group of elementary students. Those elementary school students were in the Florida Everglades under a special program between the National Park Service and the public schools to give young people a special experience in that great national treasure. I think that because of that, we are going to develop a generation of young people, soon to be adults, who will have a different feeling about the Everglades than has ever been the case in south Florida. I believe that that is an appropriate and special component of a national environmental education effort, and that is to give our total citizenry, but particularly our young people, a special understanding of the national treasures.

There was a reason that we set aside Yosemite or Yellowstone or the Everglades or our other national treasures, and it was because we as a people felt that they represented an important part of our national heritage. That ought to be an appropriate part of a national environmental education effort.

Mr. **NELSON**. I think that the bill permits that. It authorizes small grants to innovative teachers for educational and environmental projects. These small amounts of money can pay a huge dividend.

Let me conclude by saying, Senator, that your efforts to restore the Everglades to the condition that they were in in 1900 is probably, in its own way, the most important and the largest educational effort of its kind ever undertaken in this country. As soon as you can restore all the curves in the Kissimmee River, I am going to boat the whole route the next time.

But that is a magnificent educational project, what you initiated down there, and I hope we can complete it because there isn't any other water ecosystem in this country and really not any in the world that is comparable to the water ecosystem of the Everglades, starting at Lake Okeechobee and above it on the Kissimmee. When you get that completed, as I hope we will with the support of every environmental group in this country, it will end up being a wonderful educational effort about what can be done and also, more importantly, the mistakes that we shouldn't make in the future that were made down there in the Everglades in the first place, starting a half century or so ago.

Thank you very much.

Senator **BURDICK**. Just a minute, Senator.

I just want to ask my friend from Wisconsin if there has been any improvement in the ability of the University of Wisconsin to win a football game.

Mr. **NELSON**. Any improvement from where?

Senator **BURDICK**. Anyplace.

Mr. **NELSON**. Just because you played at Minnesota, Senator, you shouldn't pick on poor little Wisconsin which only has 40,000 students and no football team, really.

But when I went out to the Rose Bowl and Rosie Rossalini of Washington was Governor of Washington and they beat us about 40 to 0, and we had a big dinner that night, I pointed out—the toastmaster was Bob Hope, and there were alumni from Wisconsin and Washington, and I congratulated them on winning that game. And I said that all it proves is that they have a wonderful athletic institution and we have a wonderful educational institution.

We still have. You can do it without a football team.

Senator **Burdick**. Thank you for your testimony this morning. We recognize you as a leader in this field; we always have. You and I have been around Washington now for a quarter of a century or more, and I can say without fear of contradiction that you have been a real leader in this environmental fight.

Mr. **Nelson**. I want to thank you. You helped get me here by coming into the State of Wisconsin before I was here.

Senator **Burdick**. Next is Henry Habicht, Deputy Administrator of the Environmental Protection Agency.

While Mr. Habicht is coming to the table, I want to acknowledge receipt of statements from Senator Mitchell and Senator Chafee. Both statements will be entered into the record.

[The statements referred to follow:]

## OPENING STATEMENT OF HON. GEORGE MITCHELL, U.S. SENATOR FROM THE STATE OF MAINE

Mr. Chairman, I am pleased to join you, Senator Chafee and other members of this Committee in supporting legislation to reestablish our commitment to environmental education.

In the past several years, the Environmental Committee has developed major amendments to the hazardous waste statute, the Superfund law, and the Clean Water Act. On this Congress, the Committee is addressing problems ranging from air pollution to oil spills.

In addition, there is a growing recognition that the United States has an obligation to address environmental issues on a global scale, including global warming and sea level rise, loss of species diversity, and marine pollution.

Addressing these complex domestic and international environmental problems over the long-term will require public awareness of environmental issues and public understanding of the need to protect the quality of our environment.

The National Environmental Education Act provides for a modest Federal investment in building understanding of environmental problems and in teaching new generations about the value of our natural resources.

This legislation will reestablish the commitment to environmental education which the Congress made in 1970 with the enactment of the first environmental education statute. We now have an opportunity to correct the mistake we made when the original Act was repealed as part of the budget reconciliation bill in 1981.

I want to make several general comments about the legislation.

First, the bill directs the Federal Government to support and encourage environmental education programs. We have provided, however, that this effort will be closely coordinated with the existing efforts of States, local governments, and nonprofit organizations now involved in environmental education activities.

Second, the bill directs the Environmental Protection Agency to take the lead role in developing and implementing programs and projects related to environmental education. While the EPA is best suited to take charge of this initiative, it is essential that the EPA work with other Federal agencies and involve these agencies in all aspects of this effort.

I am especially pleased that the bill will help young people develop careers in environmental protection. If we are to develop workable remedies to the complex environmental problems we face, we need to involve our brightest and most talented young people. As a step in this direction, the bill provides for up to 150 internships for college students at Federal agencies involved in environmental protection.

Mr. Chairman, I ask that the June 1989 issue of the Maine Audubon Society journal, Habitat, which is titled "Learning to Ask the Right Questions: The Route to Environmental Literacy," be included in the hearing record.

Again, I want to commend Senator Burdick and Senator Chafee for their work in developing this important legislation.

Thank you, Mr. President.

## DIRECTOR'S COLUMN

# Learning to Ask the Right Questions

The news media were quick to put the recent oil spill on the Alaskan coast into perspective: Three Mile Island, Chernobyl, and *Exxon Valdez*. Nothing else has focussed public attention upon our ability to destroy the Earth's environment with such intensity. Needles and bandages washing up on the beach last summer were disgusting, it's true, and unusually high summer temperatures had people worried that the greenhouse effect might already be with us. But they could not fire the imagination of people a continent away like the drama unfolding in Alaska, an environmental cliffhanger whose outcome appears to be more at the mercy of currents, winds, and storms than belated recovery efforts by Exxon.

Is this because we realize how basic to our daily lives the way we produce and use energy is? The answer to that question, unfortunately, is no, because the real issues are obscured by the drama. What most of us are responding to, with outrage and righteous indignation, is the shock value of the affair: the images of tar despoiling a pristine shore, wildlife mired in oil; and the presence, stage center, of a villain perfect beyond the wildest dreams of the most fervent corporation basher.

It is hard to imagine how Exxon could have scripted its blackhat role so perfectly from the very start. All powerful, arrogant, and fundamentally incompetent. It's the stuff of which Greek tragedies were made. But in our rush to point the finger of blame, we have failed to realize the lesson inherent in this drama: that the desecration of the Alaskan coast is part of the price *we* are paying for *our* energy indulgence.

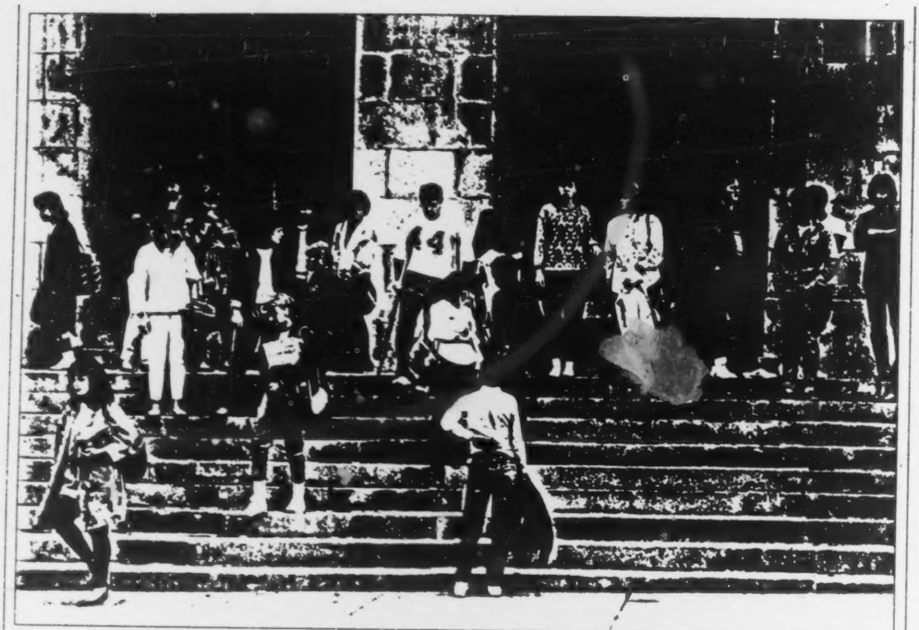
Sending cut-up Exxon credit cards to the corporation's board of directors does not address the crucial issue that underlies all of our environmental problems: people pollute, and it is up to all of us to see that we understand, minimize, and compensate for our own impact on our ultimate life support system. Those who cut up their Exxon credit cards had them in the first place, presumably, because they wanted what Exxon sells, namely a convenient and comfortable way of life. Can we really afford to bristle at the indescribable arrogance of the Exxon official who crowed that a boycott would be ineffective because by summertime, drivers would be grateful for any gas, when we know he was right? Some of the same people who have cut up their credit cards are recalling the environmentalists' warnings of many years ago who said that an oil spill was inevitable. But why didn't they boycott Exxon and other oil companies drilling in Alaska from the start? Cutting up our Exxon credit card should be an act of contrition, a *mea culpa*.

The problem with this kind of gesture, however well meaning, is that it is inherently reactive and, therefore, helps to reinforce the perception of the disaster as an isolated incident rather than as the cumulative result of our complex social and economic infrastructure. And such a reaction is also short-lived. Public attention wanes, but the ecology of Prince William Sound will be affected for years to come; the fisheries and wildlife remain at risk from this and future accidents long after the battlecry "Remember the *Valdez*" has become a distant echo in the long struggle for our environment.

The question the disaster should beg is not what but how can we learn from the tragedy. Is it just a matter of boycotting Exxon, building tankers with double hulls, or ensuring that the equipment to deal with an oil spill is in place? Shouldn't we face the fact that the real problem is far more basic and lies in our own personal demands and the millions of traumas they inflict upon the environment? Shouldn't we be asking ourselves how we have contributed to the disaster and what we can do to change it? If we point fingers without failing to heed the real lessons we risk falling into hypocrisy.

The challenge of environmental education is to get us to ask the right questions. The *Valdez* disaster gives us an opportunity to do so because it has caught the public's attention. We must find ways to cut through the immediate impacts and look ahead, beyond the sound bites. If we do not, we are just another disaster waiting for a place to happen.

Thomas Urquhart, Executive Director



CHRISTOPHER AYRES

# A CASE FOR RELEVANCY

Environmental education for teenagers must go beyond the classroom to provide opportunities for active involvement.

*By Tory Brotherhood*

Over 60,000 teenagers are currently enrolled in Maine's high schools. For many, these will be the last four years of formal learning; what they haven't been exposed to by the time their tasseled caps hit the clouds, they may never know. Even if they do continue their education—college, a vocational-technical institute, or military service—the opportunities presented to educators by their students' high school years are simply too valuable to waste, especially when it comes to learning about the environment. "These kids are going to determine the future of Maine and its resources," reminds Susan DeMott, a science teacher at Lawrence High School in Fairfield. If they are to become effective environmental stewards in the future, they are going to have to be environmentally literate.

With threats to Maine's environment already in these students' backyards, the need for environmental education is acute. For high-school educators, this not only means making their students aware of the issues currently in the news or before the Legislature, it means getting them to understand that their actions and their power as consumers have an impact on the environment. Ask a seventeen-year-old what Alar is and, odds are, he'll suspect it's a new heavy-metal rock group; tell him it might be on the apples his mother just bought and he's more likely to pay attention. Thus, if teachers are going to successfully teach about Maine's natural resources and how to manage, protect, and enhance them, they are going to need instructional materials and methods that cast the subjects in the lights of both immediacy and relevance.

Unquestionably, some good environmental education programs are already in place in some of the state's school districts. The problem is that some is not all, and as a result, many students are never even exposed to environmental issues and concerns. Even within those districts with environmental education programs, there is tremendous inconsistency in the curricula—what to teach and how to teach it. In a field where new issues and concerns pop up as quickly as sprouting antlers on a buck in spring, current and comprehensive educational resources are vital. "The environmental curriculum in Maine schools is still very scattered," admits Tom Keller, a science consultant with the Maine Department of Education's curriculum division in Augusta.

Ideally, formal instruction in environmental issues should begin in kindergarten and continue through the senior year. At the younger grade levels, students may not be ready to learn much, but the experience will still be important, since early exposure facilitates learning in the higher grades. Nature walks and aquariums are good examples of ways small children may be introduced to environmental education. Adolescents and teenagers can learn at progressively higher levels about pollution, conservation, and wildlife habitat, and how these concerns affect their own lives. Older students especially can contribute directly by working with professionals on research and natural resource enhancement projects.

By definition, successful environmental education should disregard the limitations of separate subjects. "People need to look at this education in a broad sense," says Keller. "There needs to be an integrated approach to curricula: science and writing, for example, or science and social studies. I don't think we have been that successful teaching about the environment with the current fragmented approach." In short, if environmental education is ever going to fulfil its objective, it is going to have to reflect the political, sociological, and economic concerns that affect the environment.

Ken McDougal, a teacher at Nokomis High School in Newport for the past twenty years, is a long-time proponent of integrating environmental education into real-world science. That philosophy is also the yardstick by which he measures academic impact. "When instructional materials are developed within the education community, they don't have the ties to the real world. In order to have a real awareness of the environment, you have to get the kids out into it. Our alternatives are right outside, here in the community, where you can find and do original data collection and produce some knowledge. You won't find any 'right answers,' but we don't need test-takers; we need people who can produce knowledge."

Admittedly, the situation at Nokomis is somewhat unique in that the approximately 200 acres surrounding the school buildings have been turned into a conservation area that the students can use as an outdoor classroom. Five minutes from their indoor classroom, McDougal's students can immerse themselves in actual natural resources research and management projects, from monitoring phosphorus levels in agricultural run-off to testing cold-weather forage crops. Students have constructed an artificial reef for bass habitat in an adjacent pond and also manage an on-site woodlot with the help of a Scott Paper Company forester. "We look for projects that will be relevant to the needs and interests of the students," explains McDougal. He feels that teenagers who doze off over textbooks will wake up if they have an opportunity for hands-on instruction, what McDougal calls "pawing in the dirt."

Direct student involvement with projects is crucial to successful learning; otherwise, teenagers often discount the connection between themselves and their environment. "For example, it is not enough to simply tell people not to pollute," explains McDougal. "If such an approach were adequate, Maine's highways and coast wouldn't be littered with trash and plastic." By exposing his students to environmental restoration and enhancement efforts, McDougal impresses upon them that they can effect positive change and that "environmental education is a lot more than a cartoon owl exhorting us to 'give a hoot.'"

"The most important thing I teach," says Lawrence High's Susan DeMott, "is the interrelationship of natural resource issues: for example, how land use, groundwater contamina-

*If teachers are going to successfully teach about Maine's natural resources and how to manage, protect, and enhance them, they are going to need instructional materials and methods that cast the subjects in the lights of both immediacy and relevance.*

CHRISTOPHER AYRES

*Clearly, in a natural resource-based state such as Maine, there are many professionals in environmentally related fields on whose expertise both students and teachers can draw. And the benefits are mutual. High school students themselves are a tremendous resource: a major project that might take a single professional weeks to accomplish, can be completed in one day with the help of half a dozen teenagers with some time and energy to spare.*

tion, lake quality, wildlife habitat are all connected." DeMott uses current events as core materials in her classes and regularly brings guest speakers, such as foresters and game wardens, into her classroom to give her students a sense of the relevancy of what they are learning. And, like McDougal, DeMott is a strong proponent of direct student contact with the outside professional world. Some of her students now job shadow state marine biologists, studying red tide, lobstering, and plankton or travel in the field with foresters, soil scientists, and wildlife biologists.

A teacher since the mid 1970s, DeMott is guardedly optimistic about the growing impact of environmental education and its effect on students' awareness of the world around them. "Ten years ago, most of our students didn't know what an aquifer is; now they've at least heard the word." Unlike students at Nokomis, where only college-bound students take environmental studies, all Lawrence High School students are exposed to environmental education.

As both McDougal and DeMott have discovered, many professional people are more than willing to share some of their time and expertise with high school students. One of these is Sam Chapman, an aquaculture specialist at the Darling Marine Center in Waldoboro, who has been involved with resource enhancement projects since the early 1980s. Chapman's involvement with education wasn't planned, it just emerged as a natural extension of his work. By "massaging" commercial and research aquaculture applications, he has opened up a whole new realm of opportunities for high school students and teachers. Chapman's role emphasizes an important point about environmental education in general, which is that the most successful and effective teachers are also valued professionals in their field.

Clearly, in a natural resource-based state such as Maine, there are many professionals in environmentally related fields on whose expertise both students and teachers can draw. And the benefits are mutual. High school students themselves are a tremendous resource: a major project that might take a single professional weeks to accomplish, can be completed in one day with the help of half a dozen teenagers with some time and energy to spare. When students can look at a local fishway they helped build, for example, and know they can positively enhance their environment, everyone gains. Environmental education is uniquely suited to help students, teachers, and professionals realize their common goals and concerns.

Motivating students remains the major challenge for all educators, but because most people quickly relate to topics and issues that have a direct impact on their personal lives, environmental educators already have one foot in the door. Getting their students actively involved is the key to capitalizing on this advantage. When students are actively engaged in what they are learning and recognize the value of it, they have more fun. And when they enjoy something, they will care about it. For our environment there is no better hope.

*Tory Brotherhood teaches English at Lawrence High School in Fairfield, Maine.*

COMMENTARY

# ENVIRONMENTAL LITERACY: AN ELUSIVE GOAL

*By Maureen Oates*

Twenty years ago, in the heyday of the environmental movement, the purpose of environmental education seemed clear to all its practitioners. Their goal was a citizenry well informed about the environment—one that was able to recognize and analyze problems and willing to take constructive action. Environmental literacy for all was the ivory tower for which they would build a foundation.

Dedication and enthusiasm sparked the efforts of those conservationists, teachers, and advocates that worked so hard to introduce environmental awareness into school curricula. They endlessly debated new philosophies of education and devoted countless hours to writing mission statements and comprehensive sets of objectives. What was once termed "nature study" was broadened to become "conservation education" instead. There was an eager anticipation of success, a belief that the "right" education would produce a nation of willing stewards of the natural world. But did anything come of all that ferment? Did the message ever get through?

Twenty years later, environmental illiteracy is still a chronic problem. We don't have to look far to see it all around us—the homeowner with the chemically treated lawn, the craftsperson who unthinkingly pours her toxic wastes down the drain, the countless people who still find recycling to be "too much of a bother"—the list is endless. Typically, most of us dismiss environmental problems as being someone else's concern—until they turn up in our own backyards. Even then, the overriding concern seems to be with restoring the status quo and not with finding the genesis of the problem and a solution to it. Indeed, even among those affected, it is rare to find the individual who recognizes his or her own role in creating the problem in the first place. This situation seems unlikely to change any time soon without a great leap in environmental consciousness on the part of society as a whole.

Environmental illiteracy, like basic illiteracy, carries too heavy a cost to society to be ignored. And yet environmental education is still struggling to attain recognition as a basic component of general education. The ivory-tower vision of environmental literacy persists, but the business of getting the foundation in place has proven to be a more formidable task than first imagined.

One difficulty may be that environmental educators do not yet seem to have established a consensus on what the foundation is that they want to build. Among environmental educators there are a host of divergent interests and approaches without any apparent coherent structure. While the elementary teacher, the math teacher, the history teacher all have clearly defined roles in the education process, the environmental educator's place is not nearly so clear—even to its practitioners.

What is the core of environmental education? Are environmental educators advocates or naturalists? Which approach will result in more informed and caring stewards of Earth? When we come to an agreement on that, then we can make progress on putting the foundation for environmental literacy in place.

*Maureen Oates is director of environmental education at Maine Audubon.*

# Here And Now And Three Feet Tall

## Environmental Education for the Very Young

**Despite their limited vocabulary and short attention span, young children are ready for environmental education provided it is presented in a context to which they can relate.**

*By Gail McClelland Fenton*

Teaching nature to young children can be frustrating for many parents. "Now look at that," exhorts a parent pointing to a deer in a field, only to turn and see the child gazing at his own feet through the wrong end of the binoculars. A child asks what the burdock stuck on her sweater is, only to interrupt the answer. A nature walk in the country deteriorates into splashing in the mudpuddles along the way. Are preschoolers too young for environmental education?

The answer is no; they are the right age—if it is the right sort of education. The key for parents is to understand *how* young children learn so that they can recognize *what* their children are learning.

Isaac Asimov once described scientific experiments as "asking questions of the universe." In this light, an appropriate description of two-year-olds is that they are all scientists, discovering what everyone else already knows. Young children question endlessly. Adults answer, but it is the universe they are asking. The role of environmental education is to be the universe answering.

CHRISTOPHER AYRES

*Young children question endlessly. Adults answer, but it is the universe they are asking. The role of environmental education is to be the universe answering.*

When young children explore outdoors, they are asking questions in the language of immediate sensation and emotion. The right sort of nature education for young children takes place here and now and is three feet tall; it happens wherever children happen to be and whenever they happen to be interested. It is the simple development of awareness, but that is the fundamental prerequisite for environmental education. And as Piaget and other researchers have consistently demonstrated, children's ability to think abstractly after the age of eight must be built on experiences of sensing, manipulating, and experimenting throughout infancy and early childhood.

The minds of young children are qualitatively different from those of older children and adults. In the same way that a tadpole is unable to catch a living insect, a three-year-old is unable to grasp an abstract concept. A tadpole will not become a frog if it is fed only living insects; a child will not become wiser if she is given only information that she cannot digest. Infants and small children need to practice making sense of their sensations. A baby waves a fist to grab the breeze and calls out to falling leaves. His eyes follow a cloud until he tips over backward. This *is* nature education. Infants build knowledge on the familiar and they build familiarity by repetition. Each repetition adds new meaning, and there is excitement in almost anything, since almost everything is new.

"I try to teach my two-year-old about nature," exclaims an exasperated father, "but his attention span can be measured in seconds!" When a youngster is feeling, he has trouble listening. He cannot think about two things at once. Little children do not have good control of their focus.

CHRISTOPHER AYRES

*Children should be given frequent opportunities to take nature education into their own hands.*

Their eyes stray, and their minds follow. Small children explore the world with their whole bodies. Before thought or language develop, the body is responding. A one-year-old sees a violet and immediately pops it into her mouth. For a toddler, seeing is grabbing. And grabbing is thinking.

When children are absorbed in the natural world, our language and information distract them. They are not ready for explanations until they have quenched their thirst for sensory and motor experience. Language comes later, after their bodies have answered, but even then it is inadequate, since we do not have words for describing many of the subtle sensory variations in nature. There are no words that capture the smells of black birch or apple blossoms for example; if we want to know how these smell, we ask with our noses—and the universe answers through our noses. We should use language to extend children's experience, but not to substitute it for experience.

A child rubs a maple seed. She shows it wordlessly. Her teacher rubs it and says, "This maple seed has rough, bumpy ridges, almost like your corduroy pants." The child watches the seed fall. Her teacher adds, "Maybe that maple seed came spinning down from this maple tree." The girl reaches out to the tree. She knows it by name and she knows what it does. She has been led one step beyond here and now, without going over her head.

The importance of good experiences outdoors in early childhood cannot be over-emphasized, because for children, having a wonderful time is educational. Children play at games and with objects they like, which in turn leads to increased opportunities for observation and appreciation, contributing to their ability to find meaning in the world around them. A five-year-old standing on a decaying tree stump is told, "This stump is a tree house. Here is where the bark beetles live, here are the ants, and here is a chipmunk hole." For weeks afterwards, he jumps up on tree stumps and announces, "I am standing on a tree house." What are just unsightly stumps to an adult have become places of life to the child, and in a small but significant way, he has begun to understand the concept of habitat.

Presenting nature education in the context and terms that young children can relate to is essential for teaching about the environment. The corollary to this is that children themselves should be given frequent opportunities to take nature education into their own hands and put it in their own terms. Sticks, rotting crab claws, earthworms, and acorns are perfect educational materials because children can find and collect them on their own. Children see value in and treasure the most humble objects; such awareness deserves respect and the opportunity for expression.

Successfully teaching the very young about nature requires that adults be attuned to the senses that children are discovering. Provide information when children are ready for it and give it in many small doses. With plentiful experience outdoors, young children's horizons will expand. "Here" will encompass more of the earth, and "now" will look to the future. While children are still three feet tall, we can bend to their level. They will grow.

*Gail M. Fenton gives workshops for teachers and parents with the Massachusetts Audubon Society.*

## OPENING STATEMENT OF HON. JOHN H. CHAFEE, U.S. SENATOR FROM THE STATE OF RHODE ISLAND

I would like to thank the chairman of this committee, Senator Burdick, for scheduling this hearing on a bill which could yield long-term dividends in the protection and improvement of our environment. I am referring, of course, to the National Environmental Education Act, sponsored by Senator Burdick, myself, Senators Jeffords, Mitchell, Cohen, Kasten, and others.

The concept of environmental education is not new. In 1970, Congress passed the National Environmental Education Act (a law which was never aggressively implemented by the former Department of Health, Education and Welfare, and which was repealed in 1981). Also the United Nations sponsored a major intergovernmental Conference on Environmental Education in 1977. Yet never has the need for a broad, interdisciplinary approach to environmental education, both in formal settings such as school curricula, and informal channels such as the media, been more urgent than today.

Unless we can instill in our population, especially the younger generation, an understanding that everyday actions such as garbage disposal and the burning of fossil fuels have a direct impact on our life-sustaining ecosystem, then prospects for solving environmental problems become greatly diminished.

Until this century, man has been largely incapable of causing irreparable harm to the environment. As Americans we inherited a seemingly limitless expanse of land and water. If we used up the available land, we could always push on further west. Our oceans seemed to supply us with an inexhaustible supply of food, and always rebounded from the impact of human development.

The industrial revolution, however, has dramatically changed this. Within the past few decades we have come painfully aware that the collective action of mankind can wipe our plant and animal species, deplete marine life, cause acid to fall from the sky, and deplete atmospheric ozone, with the dire consequence of global warming.

Arguably the most important tool we have to overt these assaults on our environment is education. We must arm the next generation not only with a keen awareness of environmental problems, but also with the skills to solve them.

That is why I and a number of my colleagues, including six New England Senators, have introduced the National Environmental Education Act. The goal of this bill is to expand and improve the level of environmental education in our country. Increased public understanding of environmental problems can lead to widespread public support for measures to address them. Students all across the academic spectrum—from the early grades through postgraduate studies—would benefit from the environmental education provided by this Act.

Under the bill, a major university, or a consortium of universities and non-profit agencies, will be chosen to establish and operate an Environmental Education and Training Program. This program will offer teachers and other professionals training in the development and presentation of environmental education curricula and field studies. Funds will be available in the form of grants to local and state education agencies, colleges, and non-profit organizations to promote environmental education programs and projects.

To attract young people toward careers in environmental protection, up to 150 college level internships in federal agencies involved in environmental issues will be made available each year to students. And to recognize excellence in environmental education, the bill creates three awards in honor of these great advocates of the environment: Theodore Roosevelt, Henry David Thoreau, and Rachel Carson.

To ensure a cleaner environment for future generations, we must begin to educate children today. The National Education Act is a positive step in this direction.

Senator BURDICK. OK. Mr. Habicht, you may begin.

## STATEMENT OF F. HENRY HABICHT II, DEPUTY ADMINISTRATOR, ENVIRONMENTAL PROTECTION AGENCY

Mr. HABICHT. Thank you, Mr. Chairman. I have a written statement that I would like to submit for the record with your leave, Mr. Chairman, and I would commend that written statement to the committee. It is very well written by a number of people who are very devoted to the objectives of this hearing.

Senator BURDICK. It will be received and made a part of the record.

Mr. HABICHT. Thank you.

First let me mention two things, Mr. Chairman. Let me thank you—let us all thank you for your leadership on this issue. We are delighted for the chance to share with you our thinking on environmental education and our commitment to it.

I also want to apologize for the Administrator. He very much wanted to be here. He was planning to be here right up until the last minute, but he was called away on a cause which we all share, which is working with your colleagues to secure swift passage of the Clean Air Act reauthorization. But this is an issue that is very important to him, as it is to me. I am glad for the opportunity to share with you my thoughts and the agency's thoughts on this issue.

Last night, Mr. Chairman and members of the committee, President Bush talked about how both education and the environment are critical investments in the future of America and, indeed, of the world. He mentioned that every American affects the state of our Union. I think his support of an environmental ethic, of expanding a sense of environmental ethic among our young people and all Americans is well documented. He has spoken of it many times. We all think it is important not only for the principal cause of preserving natural and environmental resources for future generations, but also for the long-term economic health and well-being of our country and the world. We think that the support of the President and the Congress of cabinet status for the Environmental Protection Agency is a tangible sign that the environment must play an integral role in the way we develop in the next century.

As we approach Earth Day 1990—and I also must commend Senator Nelson for his leadership for many years in this area—few things are more important than equipping our young people with a vision for the next century, which the President talked about last night, and to find ways to pursue quality of life in the next century without causing long-term environmental harm and without jeopardizing the well-being and opportunity of future generations.

I liked Senator Reid's allusion to the issue of seat belts. I certainly experience that with my children; they are always lecturing me about seat belts and littering, and even reforestation and recycling. I think it is wonderful, and we have a lot to learn from them.

But we also have a job to do. We have to encourage education in science and math and engineering. We applaud the interest and commitment of the Congress to this issue. We also have to applaud others in the Administration, like Admiral Watkins at the Department of Energy, who had a math and science education initiative, and we are working with him on that.

But as we encourage science, and math and engineering education, environmental curricula have to be a critical and an integral part of this effort.

We took part in the National Task Force on Women, Minorities and the Handicapped in the Work Force, and we are looking at our own professional needs for the year 2000 and beyond. We are concerned about the decreasing number of people coming out of science and engineering education, and very much need to work both for staffing our agency and for staffing the professional ranks of environmental protection, but also for equipping all Americans for dealing with the kind of environmental problems that no one agency can solve, but only all Americans working together can solve.

It is important that in whatever choice people make—whether they are in the supermarket, whether they are shopping, whether they are building a new factory—everyone is thinking about the environmental consequences of what they do.

So again, we applaud your leadership in preparing S. 1076. We understand the goals of this bill to be, first, expanding and improving public understanding of environmental issues and programs; second, to foster State and local environmental education; and third, to encourage interest in scientific and technological environmental fields.

We very strongly share and support these goals. We think they are critical to institutionalizing environmental protection for the next century and beyond.

We have several specific comments. As I said, they are set forth in much more detail in my written testimony.

S. 1076 calls for an internship program in Federal agencies. We support this proposal. EPA and other agencies are going to need an ample supply of trained professionals, as I have already indicated, in science and engineering.

Second, S. 1076 calls for an Office of Environmental Education in the Environmental Protection Agency. We also support this concept, and we are moving in this direction already. I think that what we are doing can dovetail with your proposals in this bill.

In November, 1989 the Administrator established EPA's Environmental Education Task Force. This is a task force that is being jointly run under the leadership of Lew Crampton, here, Mary Louise Uhlig from EPA, and Phil Smith, who works with Governor Branstad in the National Governors Association. This is starting off from day one as a partnership between EPA and the National Governors Association. Our objectives are to develop a four-year strategic plan for environmental education; to look at options for financing environmental education—a number of alternatives in that area; and to inventory and assess current EPA activities in environmental education and to develop a plan for expanding those.

In May, 1990, as this committee is well aware, we are planning, with the National Governors Association, an Environmental Youth Summit to deal with education issues and ideas for inculcating the environmental ethic in all of our young people.

In EPA's regions across the country, environmental education has become a major focal point for effective environmental protection. Just as an example, in our Region III in Philadelphia, we have a Center for Environmental Learning which works with local authorities and sponsors lectures, forums, and seminars on a range of environmental issues. There are many other examples around the agency. The EPA regional structure is very helpful in working with local authorities on education.

You are very well aware of the President's Environmental Youth Awards program. This year, some of the youth awards have gone to schools that have developed their own education programs and environmental protection initiatives.

We have many other initiatives that we mention in our testimony and I think, again, that these dovetail very much with the purposes of the bill that you have proposed. We are anxious to work with you to bring all this to fruition.

I do have to mention, Mr. Chairman, two concerns that we have with the bill, that we are ready and willing to work with you on.

First, we have some serious concerns about the specific proposal for funding that refers to setting aside Federal environmental enforcement penalty money for the purpose of a trust fund in this area. We are concerned about the use of penalties for funding as a general proposition. There are also some concerns with respect to the deterrent messages that are important to send through the use of environmental penalties. But we don't see this issue as a stumbling block. We very much support the notion of line item funding for this kind of program, and we very much support looking for sustainable sources of funding, such as through matching Federal and private sources. We have some ideas about which we would very much like to talk with you in this area.

Secondly, we would just like to clarify a concern about EPA's role in the development of environmental curricula. We think that EPA can play a very constructive role in serving as a clearinghouse, as a catalyst—as Senator Nelson said—for making sure that the best ideas, the best technical ideas in environmental education are disseminated and applied across the country. But we want to clarify that we don't think it would be appropriate for EPA to get in the business of actually writing environmental curricula, which is something that is underway at the State and local level and which should remain there. In this an area, however, we are very willing and interested in helping in aiding the development of those curricula.

Let me close here and leave time for questions, Mr. Chairman. I just want to reaffirm, on behalf of the Administrator and the Administration, that EPA is ready and willing to work with you to take on this important responsibility. We think education is a function that is integral to environmental protection. We can write the best regulations and bring the best cases in the world; but unless all of our people are thinking about environmental protection in everything that they do, we won't succeed in achieving sustainable development. That is why we see it as a key part of our mission to promote environmental education.

We congratulate you, again, for your leadership on this issue and look forward to working with you. Thank you very much.

Senator **BURDICK**. Thank you.

Senator Reid.

Senator **REID**. What do you think of the funding in this bill?

Mr. **HABICHT**. Well, Senator Reid, as I mentioned—you are very familiar with the concerns of prosecutors—we have a generalized Administration concern for the setting-aside, for actually earmarking and setting aside penalties for specific purposes other than going into the general Treasury. We are also concerned about the deterrent message that is sent about having penalties go to causes—like the penalties for pollution going to causes of this sort.

But as I mentioned, that concern shouldn't be a stumbling block. We have already developed several ideas for sustainable sources of funding for this proposal that could involve ideas like a foundation, or the notion of earmarking certain percentages of State grant funds for educational purposes, and again, having a line item in the budget for environmental education. The concern is simply with this specific type of funding mechanism.

Senator **Reid**. How much do you think EPA makes, on the average, from fines and penalties assessed? Do you have an idea?

Mr. **Habicht**. Senator, we can get that number for you. It varies. It certainly has been increasing, and we are proud of that. I would say that it's in the tens of millions.

Senator **Reid**. You will get that figure, then?

Mr. **Habicht**. We will do that.

[The information requested follows:]

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**
**WASHINGTON, D.C. 20460**

FEB 20 1990

OFFICE OF CONGRESSIONAL
AND LEGISLATIVE AFFAIRS

Honorable Quentin N. Burdick
Chairman, Committee on
Environment and Public Works
United States Senate
Washington, D.C. 20510

Dear Mr. Chairman:

During the hearing on February 1, 1990, at which Deputy Administrator F. Henry Habicht II testified on S. 1076, the proposed "National Environmental Education Act," Senator Reid inquired as to how much the Agency collects, on the average, from fines and penalties assessed pollution control violators. Mr. Habicht indicated that this information would be provided for the record.

In FY 1989, $34.9 million in civil penalties were assessed. This would include $21.3 million in civil judicial penalties and $13.6 million in administrative penalties. We should note here that this total does not include the $15 million penalty in the Texas Eastern Pipeline consent decree which was entered by the court after the end of FY 1989, on October 11, 1989.

We would also mention that under the Agency's civil penalty policy, Federal negotiators may mitigate a portion of a civil penalty in exchange for environmentally beneficial enforceable conditions in consent orders or decrees, e.g., pollution prevention or restoration projects. Therefore, when we speak of penalties assessed in the above context, we are referring to the final dollar penalty amount assessed and to be collected by the Federal government from the defendant.

Thank you for the opportunity to provide this information for the hearing record.

Sincerely,

Charles M. Hassett
Acting Director
Legislative Analysis Division

Senator **Reid**. As I read the bill, maybe we should have been broader in defining "environment" to include not only land, rivers, and trees, but maybe living creatures. Do you think this is important at all, that we broaden the definition in this act?

Mr. **Habicht**. Yes, Senator, I think it's important. We are recognizing at EPA that the human environment, the natural environment, the impacts of human activities on both people, ecological systems, and natural resources—all of those are important features of environmental protection.

Senator **Reid**. Do you feel the authority for administering the act should be with the EPA or with the Department of Education?

Mr. **Habicht**. As we have reviewed this issue, Senator, we feel that we have an important role to play in this. Whatever happens with this bill, we think that EPA has a critical role to play in environmental education. We already have some programs underway. We also think that our technical capabilities with regard to environmental protection issues, as well as our regional structure in which we already have well-developed regional programs in or near the communities around the country, would make a transition into this environmental education program quite easy at EPA.

Senator **Reid**. Which of the two do you feel should administer the program?

Mr. **Habicht**. Well, the Department of Education certainly has great capabilities, but we think that on an issue like this, the EPA would probably be best positioned to move forward with it.

Senator **Reid**. Thank you, Mr. Chairman.

Senator **Burdick**. Senator Jeffords.

Senator **Jeffords**. Thank you, Mr. Chairman.

Thank you for your excellent statement. I was intrigued by your thoughts that we might look to the private sector as an option for funding education here, and I wondered if by any chance you had taken a look at the National Fish and Wildlife Foundation as a model for private sector involvement. Have you taken a look at that?

Mr. **Habicht**. Senator, I have had a chance to look at it briefly. I know a number of our people have been looking at it. The preliminary sense that I have about that foundation is that it seems to be very successful, that it is an idea that has enjoyed some success. They seem to have a sustaining base of funding. It allows for a collection of resources to augment what the Federal Government does in this very important area of fish and wildlife preservation.

So I would think that would be a model we would want to look at. Now, that's entirely, as I understand it, freestanding from any Federal agency. We might want to look at a variant of that in which there would be closer ties to an agency like EPA, so we would be able to channel our technical and other resources directly into the effort. But that idea, of matching Federal and private funds, seems to be a very good one.

Senator **Reid**. Would the Senator from Vermont yield just for a moment?

Senator **Jeffords**. I'd be happy to yield.

Senator **Reid**. Is that Breaux-Wallop money about which you speak? Tell me what you're talking about, the private fund that is used by the Fish and Wildlife Foundation.

Mr. **Habicht**. Well, it's a foundation that was set up for certain purposes——

Senator **Reid**. It's not the Breaux-Wallop thing?

Mr. **Habicht**. I don't believe so. No, I don't believe it is.

Senator **Reid**. Thank you.

Senator **Jeffords**. I think it's something we ought to look at. I appreciate your help. Senator Chafee is interested in it, as I am, so we'll be pursuing that with you.

I also wanted to know whether or not you are having difficulty in finding professional staff. We have a declining number of students now. Have you had a problem in finding professional staff for the agency? If so, what kind of problems are you having? Where are you getting your staff from?

Mr. **Habicht**. It sounds like you may be a competitor for that talent.

No, Senator, we are having more problems than we'd like to have. I think that my overall sense is that there is a great deal of excitement, as you know, about the environment and environmental protection, so we are continuing to attract very talented and energetic young people into public service. We are pleased with that. But we are concerned as we look down the road and as we look at certain areas of need for technical discipline, in areas like women and minorities in science and engineering. We have as a policy priority a major effort of recruiting people in science and engineering, women and minorities and really talented people across the board. We see those ranks depleting, and we are very concerned about it. We will make a major effort to expand our recruiting efforts to more universities. I think that internship programs are very helpful. The fact of the matter is that the pipeline is not as full as it should be, so an effort to really build an interest in high school in people going into these disciplines is needed, we think.

Senator **Jeffords**. Thank you, Mr. Chairman.

Senator **Burdick**. As we develop this legislation, I expect to be asked whether some part of the Federal Government should take the lead in environmental education. Your answer is that the Administrator of EPA wants to administer this program to make sure that it's done right?

Mr. **Habicht**. The Administrator is ready and willing to administer this program and devote the time and effort necessary to make it a success.

Senator **Burdick**. Do you think that is the proper area of Government which should handle this?

Mr. **Habicht**. Yes, Mr. Chairman. As I say, the Department of Education is a very capable and effective department, but I think that in this area, because of the technical nature and because of the infrastructure that we have, because of the nature of our environmental protection mission over the next several years, in this case the best place to house it probably would be EPA, working with other agencies and institutions outside of the Federal Government.

Senator **Burdick**. While the EPA should take the lead in this effort, it is essential that the EPA work closely with other Federal agencies, such as the Council on Environmental Quality, the Department of Education, the Department of the Interior. Do you agree?

Mr. HABICHT. Yes, absolutely.

Senator BURDICK. Any further questions?

Senator BURDICK. Thank you. That's all.

Mr. HABICHT. Thank you, Mr. Chairman.

Senator BURDICK. I now will call the first panel: Mr. Gary J. San Julian, Vice President for Research and Education, National Wildlife Federation; Mr. Steven Kussmann, Chairman, Alliance for Environmental Education; Ms. Peggy Cowan, President, Western Regional Environmental Education Council; and Dr. Kathy McGlauflin, Board Member, North American Association for Environmental Education.

I would ask that you limit your testimony to five minutes per person. If you have to develop your position longer, we'll give you longer, but try to keep it in five minutes each.

Proceed as you wish.

## STATEMENT OF GARY J. SAN JULIAN, VICE PRESIDENT, RESEARCH AND EDUCATION, NATIONAL WILDLIFE FEDERATION

Mr. SAN JULIAN. Thank you, Chairman Burdick.

I am Gary San Julian, Vice President for Research and Education of the National Wildlife Federation. We welcome this opportunity to present our views on S. 1076, the National Environmental Education Act.

We are the largest nonprofit conservation and education organization, with over 5.8 million members. The National Wildlife Federation has been involved in environmental education throughout its 53-year history. We are working to move citizens from awareness to action on environmental issues through education.

Given the complex array of global environmental problems, we view this proposed legislation as a critical and necessary step in creating an environmentally literate citizenry. Citizens should have an understanding of how the world works, how ecology, social, and human-built systems interact. Everyone should understand that the earth's life support system is fragile, and that each of us every day makes decisions that affect this delicate balance.

We believe that we can attain this goal through education. S. 1076 is a major step forward in realizing this crucial goal. The inadequate implementation and ultimate demise of the Environmental Education Act of 1970 was a matter of great concern to our members, and a setback in the Nation's efforts to promote environmental literacy. There is no Federal coordination for a comprehensive national environmental program.

We seek a continuity of funding, and we believe this is critical. We commend you, Mr. Chairman, and your staff and Jeff Peterson for the work on this bill, and the bill's many cosponsors, on taking the initiative to once again restore our Nation's leadership in this vitally important and too long neglected educational endeavor.

Let's make sure our young leaders in their century know as much about natural resources, ecology, and the interrelationship of the environment as they do about history, language, arts, and the social sciences. We must send this message to the students in the prairie pothole region of the United States as much as we send it to the inner city areas of our metropolitan cities.

Overall, the National Wildlife Federation heartily supports the direction and content of this bill. We believe it will provide the national leadership and needed support for environmental education.

Although this bill addresses many of the needs identified by the environmental community, the implementation of the act could be enhanced to make it even more comprehensive and effective. Given the recent Brundtland Report, "Our Common Future," and the work of international organizations, it is clear that society has begun to recognize the global implications of environmental problems.

We recommend the inclusion of language allocating funds in support of international environmental efforts, designed to increase cooperation, to exchange training methods and materials, and to promote international internships. We also support efforts of the bill to strengthen environmental education programs aimed at all levels of society, and would endorse language that recognizes the importance of educating non-formal audiences, to include materials for ethnic and culturally-diverse people and individuals with special educational needs.

To make the most efficient use of funds, we would also like to see the required evaluation of existing environmental education networks and the continued funding of those networks with proven track records, such as the Federally-sponsored ERIC network, and support for outstanding environmental education programs, such as the ones you will hear from today.

We hope that the bill's proposed provision for internships is intended to encourage and include participation of teachers and other educators. This will help motivate professionals currently in the field, and it will significantly enhance that multiplier effect.

In the same vein, we support broadening the current National Awards Program in the bill, to include recognition of outstanding student activities in the environmental area. This type of public recognition of scholastic achievement will motivate others and add credibility to the curriculum.

And finally, it is our experience that the expertise for educational training exists throughout the country in schools, not-for-profit organizations, museums, nature centers, and other educational institutions and organizations. We would encourage language ensuring the continuation of proven and effective training initiatives.

The National Wildlife Federation has proclaimed in the 1990s as the Decade of the Environment. This will be the time we must deal with global enviornmental concerns, or the world our children will inherit will be seriously degraded. This bill provides vision and leadership to help build the environmentally-literate citizenry we need. We are ready at the National Wildlife Federation, and willing, to work with this committee in any way that we can to ensure the timely passage of this bill.

Thank you very much.

Senator Burdick. Thank you. Next.

## STATEMENT OF STEVEN KUSSMANN, CHAIRMAN, ALLIANCE FOR ENVIRONMENTAL EDUCATION

Mr. KUSSMANN. Good morning. My name is Steven Kussmann. I am Chairman of the Alliance for Environmental Education, the Nation's largest environmental education organization, with over 80 coroporate members. I also am Director of Communications Programs for the American Gas Association, but today I appear on behalf of the Alliance.

It is a privilege to appear before this committee on a matter of great importance to the Nation and the world. The Alliance commends your leadership in bringing the National Environmental Education Act before the Senate. The Federal Government has a critical role to play in this area, and we are delighed to see the bipartisan support which S. 1076 has attracted.

The time has come for our Nation to realize that environmental quality and economic progress will only be achieved when our citizens at all levels of society develop an environmental ethic. Education is the key to development of that ethic.

Established in 1972, the Alliance serves as an advocate for a quality environment through education, and advances communcation, cooperation, and exchange. Since its formation, the Alliance has sponsored research, conferences, and other initiatives to identify and implement a national environmental education strategy. Over time we have concluded that environmental education is a life-long activity that continues on the job and in the home well after formal schooling is completed. This education is best conducted at the grassroots level with support and leadership from the State and national levels.

We also learned that while there is an abundance of high quality, usable environmental education materials and programs available in the Nation, such as those represented here today, the networking mechanisms and partnership needed to link programs with people did not exist.

This finding led the Alliance to consider and adopt, in 1986, a partnership program now known as the Network for Environmental Education as its major undertaking. This network was modeled after a successful environmental education network established in seven southeastern States in 1977 by the Tennessee Valley Authority.

Through the Network, interactive electronically-linked environmental education centers based at colleges and universities and other institutions serve designated geographic areas with programs and services that include teacher and professional training, community outreach, program adaptation and development, and research. To date, almost 50 centers are participating in the Network, and we expect 100 to be in operation by the end of the year.

We believe the Network and the partnerships it embodies should serve as a role model for your legislation. Issues have evolved since the original Environmental Education Act was enacted in 1970. The relative absence of the Federal sector from the environmental education field over the past decade has been met with a resurgence of interest from other organizations. For instance, the American Gas Association produced this endangered species education unit in conjunction with The Nature Conservancy to support the PBS series, NATURE, and, you won't find a word about natural gas in it!

However, our Nation needs strong Federal participation and leadership in environmental education, and we are pleased to see momentum in this direction. A leader among Federal agencies is the Environmental Protection Agency, that has come to realize that its success depends as much on pollution prevention and environmental education as it does on regulation and enforcement.

But no sector, not even the Federal Government, can handle this job alone. EPA recognizes this fact and is already building networks and partnerships to meet its environmental education needs, as the Deputy Administrator explained.

For this and other reasons, the Alliance supports the formation of an Office of Environmental Education within EPA. We believe that to achieve aspppropriate internal as well as external goals, the office should be housed in the Office of the Administrator.

We support the designation of EPA as the lead agency within the Federal sector. There are many environmentally-minded and educationally-oriented agencies in the Federal Government, but only EPA has as its sole mandate the protection of our environment. Indeed, we would like to see an Office of Environmental Education in all Federal departments.

We also support the need for an advisory council to the Administrator on environmental education. Such a council already exists at EPA through the agency's National Advisory Council on Environmental Technology Transfer, Committee on Environmental Education and Training. This committee has been meeting and discussing important environmental education issues for more than a year and already has developed a set of comprehensive recommendations for the Administrator.

The Alliance has strong reservations regarding the Environmental Education Institute, as proposed in S. 1076. While in the past there was strong support for such an institute, today environmental education leaders recognize that a decentralized network of environmental education centers is a much more effective mechanism to deliver services than a single national center or institute. Your act should build on the progress made since 1970 and look to the partnerships embodied in the network concept to meet this need.

Finally, the Alliance finds the funding mechanism in S. 1076 innovative and the funding level appropriate. Fundamental, though, to any funding strategy is reliability. Political change, budgetary crunch, or other forces may mean that funding approved one year disappears the next, as was the case with the 1970 act. The Alliance believes it is imperative that the committee find a strategy that will ensure long-term and consistent funding for the act so that the long-term process of environmental education does not get sidetracted by annual Federal fiscal problems.

We propose that you consider establishing a public/private foundation for environmental education that would meet this need.

The Alliance stands ready to work closely with you and your staff to complete the crafting of an effective environmental education act that will serve the 1990s and beyond.

Thank you.

Senator BURDICK. Thank you.
Next.

## STATEMENT OF PEGGY COWAN, PRESIDENT, WESTERN REGIONAL ENVIRONMENTAL EDUCATION COUNCIL

Ms. COWAN. Mr. Chairman, my name is Peggy Cowan. I am the President of the Western Regional Environmental Education Council, and the science specialist for the Education Department in Alaska. As the representative of the Council I appreciate the opportunity to comment on the National Environmental Education Act.

While we endorse the act and thank your committee for the recognition of the critical role of environmental education in preparing our citizens and country for the future, we have specific concerns with the provisions of the bill and its implementation.

It is difficult for States to work together on a national or regional basis. The Federal Government can facilitate this exchange and establish mechanisms to encourage and disseminate successful programs. The Western Regional Environmental Education Council, as one such mechanism, is an organization of representatives of resource and education agencies of the 13 western States.

The Council was established with funds from the first Environmental Education Act. These funds acted as a catalyst to initiate programs which are now important components of environmental education in our schools nationwide. The Council's programs are the two most widely used conservation education programs in classrooms in 49 States. Project Learning Tree provides a model for cosponsorship with the private sector; in this case, the American Forest Council. Project WILD is co-sponsored by the Western Association of Fish and Wildlife Agencies, another example of a partnership which has benefited U.S. students. Together, these programs have trained more than 500,000 participants and reached more than 30 million students.

We recommend that the present act be modified to:

One, establish true partnerships between resource and education sectors;

Two, ensure the most effective use of resources;

Three, fund what has already proven successful and programs of assessed need; and

Finally, support fundamental change of school programs.

The choice of agency to house the program should be predicated on the agency's ability to establish these real partnerships between the education community and resource agencies, and to address all elements of environmental education. If the program is housed in the Environmental Protection Agency, it will be important to ensure that the environmental topics are broader than the mandate of this single agency. The topics of environmental education include those of other agencies, such as those in the Department of the Interior and Agriculture.

The partnership established should take advantage of educational expertise and leadership in these programs as well. Current educational research has much to contribute to environmental education. The education agencies and the schools can provide this expertise, along with the experiential knowledge of what will make a difference.

The advisory council can play a critical role in establishing this partnership and the national vision of the program. The other Federal resource agencies should be included, along with the National Science Foundation, with its extensive experience in providing grants to education agencies and organizations.

A disproportionate amount of funding, 70 percent, is designated to the activities of the Office and the single training program. The bill as a whole should fund currently underfunded programs which have proven successful, and new programs in areas of assessed need. The training program as described now would have little impact nationwide. As Mr. Kussmann pointed out, a single training program would reach too few individuals and does not recognize the regional differences in our environmental and educational concerns.

Funding continuing training experiences, using the teacher multiplier model, would enhance environmental education beyond the few individuals who could attend training at any centers.

The grant program provides the greatest opportunity for making a difference nationally, and should be funded at a level that reflects this potential and guarantees its success. The educational reform that is needed in this country now is comprehensive. Simply patching up one part of the system will accomplish little. Environmental education programs are holistic and interdisciplinary and suited to meet this challenge. The $100,000 cap on the grant program is too limiting for these comprehensive programs.

The internship program can be a valuable component, but in only addressing college students, it is too limiting. It should be expanded to high school students and teachers as well.

I encourage you to support the National Environmental Education Act and its recognition of this important role of environmental education. I also encourage you to best meet the needs of the States and local communities by modifying the act.

Thank you for the opportunity to discuss this important legislation.

Senator **Burdick**. Thank you.

## STATEMENT OF KATHY McGLAUFLIN, BOARD MEMBER, NORTH AMERICAN ASSOCIATION FOR ENVIRONMENTAL EDUCATION, AND DIRECTOR, PROJECT LEARNING TREE

Ms. **McGlauflin**. Good morning. My name is Kathy McGlauflin. I am here representing the North American Association for Environmental Education. I am also the National Director for Project Learning Tree.

Mr. Chairman, I am an alumni of the University of Wisconsin, but they did not give me a doctorate degree, so I would like to correct that for the record.

Senator **Burdick**. I'm a graduate of the University of Minnesota. Do you think we could get along?

Ms. **McGlauflin**. I think we could.

We've got a pretty good hockey team, though.

The North American Association for Environmental Education would like to commend you and the committee for your important initiatives related to environmental education. And thank you for asking us to testify on S. 1076.

Our Association fully supports the concept and intent of your legislation. NAEE is a professional association that was established in 1971 to assist and support the work of individuals and groups in environmental education, research, and service.

It is clear that many aspects of your proposed bill address important needs related to environmental education. However, we would like to raise some issues for your consideration as ways to strengthen the bill.

Although your bill is essentially an education bill, we see relatively little reference to and/or direct involvement by the United States Department of Education. Since they are in almost continuous contact with the schools of our Nation, we believe that agency would be in a position to also pay a major role in achieving the objectives of the bill. However, we believe they need to be charged with the responsibility of cooperating with the Environmental Protection Agency to promote environmental education.

We also encourage supplementing, not supplanting, existing networks and programs. While there is a reference to the programs and activities of other Federal agencies, nonprofit organizations, museums, and nature centers, the bill seems to recommend the initiation of totally new programs. We believe a more cost-effective approach would be to augment existing high-quality programs.

Specific mechanisms to coordinate and ensure the cooperation of the many Federal agencies with ongoing environmental education programs, such as the U.S. Forest Service and the U.S. Fish and Wildlife Service, should be added to the bill.

We would also encourage language that fosters public and private environmental education partnerships and networks. An example of an effective partnership is Project Learning Tree, which is cosponsored by the Western Regional Environmental Education Council and the American Forest Council.

We support the establishment of the Environmental Education Advisory Council, but we are concerned that the university representatives include those responsible for training our future teachers, as well as those responsible for updating the environmental knowledge and teaching skills of our in-service teachers.

While we applaud the inclusion of an environmental education and training program, we believe a more effective approach—as my colleagues seem to believe—would be to proportion a greater share of funding to support currently underfunded programs which have proven successful, and new programs in areas of assessed needs. Again, there are many institutions and organizations that are currently doing an outstanding job of training teachers and other professionals.

The library of information and dissemination of educational materials could be managed by the federally-sponsored Educational Resources Information Center. Network-based at Ohio State University, ERIC, as it is called, has been disseminating information through computer and print medium since 1968.

Any internship program you consider should not be duplicative. We recommend that the bill call for a smaller, fully funded intern program aimed at in-service and pre-service teachers who need to increase their understanding of the environment so that they can translate that knowledge and experience into meaningful activities for their students.

Finally, we support the inclusion of the Environmental Education Awards, but encourage the EPA to look at existing awards programs. Our organization and others also sponsor a series of environmental education recognition awards.

The North American Association for Environmental Education stands ready to assist you in developing and implementing the most effective education legislation possible. Thank you.

Mr. Chairman, I would also request permission to submit a letter from Project Learning Tree at a later date for the record.[1]

Senator BURDICK. Certainly. It will be received.

Ms. MCGLAUFLIN. Thank you.

Senator BURDICK. I am a little bit nonplussed here. Where does the responsibility lie, according to your testimony? Should it be with the Department of Education, or should it be with EPA?

Ms. MCGLAUFLIN. Our organization feels that we want to see an environmental education act. We support that act, and we will support the act if it is housed in EPA. We would simply like to see mechanisms in place to assure partnerships through the management of the bill.

Senator BURDICK. It's awfully hard to get responsibility when you have to have two drivers in this automoble.

Ms. MCGLAUFLIN. I'm sorry?

Senator BURDICK. It's very difficult to get a direction when you have two drivers in the car.

Ms. MCGLAUFLIN. Well, perhaps the Advisory Council could fill that mechanism.

Senator BURDICK. One of them would have to have the final word, you know that.

Ms. MCGLAUFLIN. Yes.

Senator BURDICK. Which one is it? I asked you a simple question.

Ms. MCGLAUFLIN. Yes. The North American Association for Environmental Education would support the bill on EPA.

Senator BURDICK. As is?

Ms. MCGLAUFLIN. Yes.

Senator BURDICK. Thank you.

Any questions?

Anyone here can volunteer an answer to this question. We have authorized $15 million to support the proposed environmental education program. This funding is divided roughtly in thirds, with one third for EPA administration, one third for grants to schools, and one third for teacher training and program development. One of the witnesses testified that they didn't think $15 million was enough.

Does anyone here wish to volunteer a statement? Do you think $15 million is about the right authorization, or not?

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[1] Not received by time of publication.

Mr. **San Julian**. I believe if the bill is funded at that level, that will be a very good start. I think that in the past, looking at my experience back in the 1970s when I was a classroom teacher, the problem was that there were a lot of unfulfilled promises; and if the bill in indeed authorized and appropriated at $15 million, I think that will be an excellent start.

Senator **Burdick**. I'm not sure which one of you raised a question about the amount. Do you want to speak up and defend yourself?

Ms. **Cowan**. I agreed that it was a minimum starting figure, but I will respond.

One of the programs that I administer in the State of Alaska is the Eisenhower Act, which is for improvement of math and science. That bill has varied in funding, but this last year it was about $130 million. It has made a significant difference in many States, but it's still only a start at that level. So it has been an increment, and again, it has been a good start; but to make a real comprehensive change, even at that level, in the areas of math and science, that has seemed inadequate. The Administration bill for this year has it at a level of $100 million more; it has it at $230 million in the Administration budget.

So I think $15 million is a great starting spot. I agree with Mr. San Julian on that, but I certainly would encourage us to seek additional monies because it is a big job.

Senator **Burdick**. You heard of this instrument here in Washington called the budget?

I'm sure many programs would like to have more money, but is there any reason why $15 million wouldn't be a good start? Any one of the four of you?

Ms. **McGlauflin**. A good start.

Senator **Burdick**. Thank you.

Anything else?

[No response.]

Senator **Burdick**. That's all. Thank you.

The panel of educational organizations is next: Mr. William Hammond, a teacher in the Lee County Public Schools, Fort Myers, Florida; Ms. Roxanne Bradshaw, Secretary-Treasurer, National Education Association; and Mr. John Padalino, representing the National Science Teachers Association.

You may proceed as you wish, and we would like to continue the limitation on time, if we could, to five minutes, but if you need more time, we will consider an extension.

## STATEMENT OF ROXANNE BRADSHAW, SECRETARY-TREASURER, NATIONAL EDUCATION ASSOCIATION

Ms. **Bradshaw**. I will start out.

Senator Burdick, thank you so much for asking us to testify this morning. NEA has submitted copies of our formal testimony, and you do have that before you.

My name is Roxanne Bradshaw. In my real life I am a faculty member from Pike's Peak Community College in Colorado Springs, Colorado. I say that because I want you to know how personally sensitive I am to the environment. In Colorado Springs, we know what happens when you don't take care of the air quality. I am currently the elected Secretary-Treasurer of the two-million-member National Education Association, which represents professional and support employees in public, elementary, secondary, and post-secondary schools throughout the Nation.

We appreciate the opportunity to comment on this important piece of legislation to promote better understanding of this very fragile planet, and we want to thank you and Senator Chafee for the work you have done on the preparation of S. 1076.

NEA has long believed that America's priorities must include the protection of our environment. Toward that end, NEA actively suports efforts to develop and improve educational programs that will promote the concept of interdependence of humanity and nature; develop an awareness of the effects of past, present, and future population growth patterns of world civilization, human survival, and the environment; promote an understanding of the necessity to protect endangered, threatened, and rare species; promote an understanding of the necessity to protect the earth's finite resources; and finally, to promote the concept of pollution reduction.

NEA is actively involved in the Alliance for Environmental Education which, as you know, is a coalition of some 40 environmental educational, and public service organizations who share a commitment to disseminate information that will generate a better understanding of and a respect for our biosphere.

We are aware that this bill would establish an Office of Environmental Education within EPA's Office of External Affairs. I also know that you are very sensitive to the fact that NEA believes that Federal education programs should be administered by the U.S. Department of Education. However, we recognize that given the expertise of the EPA staff, and that funding for these programs would come from EPA fines, we do agree that it is appropriate to maintain these activities within EPA.

We do emphasize that this would be by no means considered a precedent for shifting programs out ot the Department of Education, or for creating a variety of new programs that circumvent the Department of Education.

With all of that having been said, we are very encouraged that the act would provide funds to conduct in-service education programs for education professionals. In addition, this provision would establish a library of environmental education materials, information and literature, which is very needed.

We support provisions to provide grants of up to $100,000 to local education agencies, colleges, and universities to develop environmental educational materials and curriculum.

We strongly support the inclusion of a classroom teacher as a member of the Environmental Education Advisory Council. We are confident that the perspective of a professional teacher will be helpful in developing the appropriate environmental educational programs, whether or not they are located in the public school.

And finally, we energetically support the development of an environmental education trust fund, using a portion of the fines levied pursuant to violations.

Again, we commend you for this effort and we thank you for the regard in which you hold this environment, this earth. The consequences for blatant disregard for the health of our planet are so great that we can truly say that unless we act today, there might not be a tomorrow.

Thank you ver much.

Senator **Burdick**. Thank you.

Which one of you gentlement wants to lead off now?

## STATEMENT OF JOHN PADALINO, REPRESENTING THE NATIONAL SCIENCE TEACHERS ASSOCIATION

Mr. **Padalino**. I am John Padalino, President of a not-for-profit corporation called the Pocono Environmental Education Center. I am here representing the National Science Teachers Association. I chair its Task Force on Environmental Education, and I am its representative to the Alliance for Environmental Education.

I concur with Senator Graham's comment about the private/public partnership between the Federal Government, because the Pocono Center is a living example of almost two decades of a successful partnership between the National Park Service and a private agency.

I have submitted a record of testimony with some backup.

Senator **Burdick**. It will be received in full.

Mr. **Padalino**. I am delighted to comment in support of the proposed National Environmental Education Act. The National Science Teachers Association is dedicated to the improvement of science education at all levels. The Association promotes the ideal of professional excellence to our members through conventions, award programs, journals, and publications. NSTA's concerned and involved members, assisted by a professional staff, reach students concerned with the environment everywhere from preschool to the university level.

It is clear that a citizen of the United States can no longer function without an understanding and a commitment of the human to the environment. This commitment will act to maintain an environment fit for life and fit for living. The pressures of demand on limited resources and the impact of hitherto acceptable behaviors on the utilization of resources requires an understanding of their application to science, technology, and society. Hence, the more Federal attention directed to environmental education in the proposed act, the more appropriate it will be to the fundamental question: what kind of a world do we want for our children?

The Federal Government needs to more actively support and maintain a presence in environmental programs. The act parallels comprehensive activities of the National Science Teachers Association in environmental education. For example, we provided for regional recognition for excellence in environmental education. We have evolved criteria for environmental education program excellence, the criteria included in the testimony I provided. We have promulgated guidelines for exemplary environmental education programs, and established a policy on the use of natural resources in the teaching of science. That NSTA position statement is also submitted for the record.

NSTA applauds your efforts to establish an Office of Environmental Education in EPA. We feel there are certain parallels between that effort and what happens in science education, being located in the National Science Foundation.

We applaud your support for internships, and we also applaud your efforts to provide awards and recognition for exemplars in environmental education. In fact, the criteria that the National Science Teahers Association evolved for determining excellence in environmental education is submitted for your review, as are 10 exemplars that we identified in 1987.

Members of NSTA bring broad experience to these activities which you have proposed, and are willing to assist you with their implementation. A list of our task force members is also included. We would like to keep informed of progress on the National Environmental Education Act and would like to know how we might best serve science educators of the Nation by working with you.

Thank you.

Senator BURDICK. Thank you.

## STATEMENT OF WILLIAM HAMMOND, TEACHER, LEE COUNTY PUBLIC SCHOOLS, FORT MYERS, FL

Mr. HAMMOND. Senator, I too thank you for the opportunity to actually go through the experience of testifying that we put our students through, to "feel the tension" of the seat.

My name is Bill Hammond. I am Director of Environmental Education and Instructional Development Services for the Lee County Schools down in Fort Myers, Florida. Our school system has been involved in environmental education in a formalized program for the last 23 years. We were one of the environmental education exemplars programs that Mr. Padalino just pointed out NSTA identified and recognized.

Our program really started back in the early 1960s, from high school kids involved in research in marine science. What we found was that as the students were involved in marine science research, they recognized that the natural systems were being impacted greatly by the upstream urban systems. We moved from a focus on natural or marine sciences to environmental education, and that's where I first learned about environmental education, from our students.

From that experience in the 1960s, in 1969 we applied for a Federal HEW Title III 306 innovative grant and received it. While we were one of the smallest of the funded projects, that three years of experience allowed us to do things that our school system could never have tried on its own. To try some innovation in a school system that is one of the fastest growing in the United States, the funding provided the risk capital to try those innovations which could not have come without that Federal money as a stimulus.

In addition to that, we received funding under the Office of Environmental Education for community grant funding, and a whole regional organization ECOSWF was formed and is still active and viable today.

Our school system, when our Federal funding terminated in 1973, picked up the program and has funded it at a greater level than the Federal Government funded it for every year since. Currently, we operate a program in the neighborhood of $400,000, funded at the local level, the program has a K-12 environmental education program; a set of curricula, as Senator Nelson prescribed would be wise to do; a field trip program that reaches over 35,000 students—but, the real thing that we have discovered is that the community is changing rapidly, it is true all over the country, a country where most of the people spend less than 5 percent of their time outdoors, where most children don't live with their original two parents we have had to recognize that the change in society is widespread. In the high school and junior high school that I taught at in the early 1960s, 95 percent of the kids had been to the beach in a coastal county. I surveyed that same school this fall, and less than 10 percent of the kids at the 7th grade level had been to the beach, except when they went with school programs.

So we are seeing an emerging society where their outdoor experience in nature is becoming more limited. Their home base is becoming more shrunken as we urbanize, and their sensitivity to the environment is must less perceptive.

So I am a strong supporter of the stimulating role that the Federal Government can play in offering venture capital at reasonable risk to agencies and organizations to try out new ideas, to stimulate innovation, to let us try modeling things and to transfer those effective practices as a catalyst for positive change rather than as an all encompassing solution to the big problem.

In reviewing the bill I have just a few comments.

Section 2, the findings. The only concern I have is with other peoples stated concern about the term "natural environment." I see everything as natural, since all is either energy or matter. My concern, then, is not with the definition of "natural;" my concern is that from experience in working with legislation when it gets translated to regulations and guidelines, that perhaps somebody sitting in an agency and drafting regulations later on may not recognize themselves nor their agency or office as natural, and consequently may preclude proposals that focus on the human and built environment as outside the boundaries of the act. From the testimony I heard today I don't think that would happen, but I think it is a legitimate concern.

The definitions section—I think you're wise in not defining "environmental education." I don't know of many that have succeeded.

In the grants section, I would suggest perhaps another section 5, and that is that we might provide instructional models in training of teachers and student leaders and community citizens on how to effectively take action, how to address and solve local community problems. We know from research that effective action comes when people have knowledge, skills and mentorship. In our system we have just four basic conceptual themes or ideas that we try to teach students: resources, which is matter; change, which is energy; interrelationships, which is the dynamic interaction of matter and energy that makes life possible; and finally, the fourth, that we have responsibility in a democracy to take responsible action either as an individual or as a member of a group.

On the Advisory Council, I would suggest you might consider adding at least three more business people. Our advisory council has 28 people on it at the local level. It is important the business community have a major role.

The trust fund, I think, is a great start, but it is conservative. As Senator Graham mentioned earlier, Florida in its present Environmental Education Act is expected to fund it at the state level at $6 million to $9 million, using save our coast trust funds, and depending on whether we have oil spills or not, that will provide a base. In addition to that, the Governor has formed a trust fund group, the Save our Florida Environmental Education Fund, where businesses and corporate leaders and citizens are raising funds from the private sector for a public environmental education grants program.

I think the issue of "turf" is a great one. As an educator, I personally support EPA as the home base for this bill. As much as I dislike admitting as an educator that the education establishment is not ready to do much in EE is a reality. I think we educators are so preoccupied with trying to move from an industrial era school system to a school system that services the service and information and metabiological thinking era that the obvious benefits of EE Programs are overlooked. Projects WILD and Learning Tree learned something, that when you mix agencies at the State level, many times when the resource agency took the lead, the State educational office followed, but it would not have taken the lead on its own. And I think in this era of synergy, this is the time when we just need a spark to move things along. And I think this bill, as it is proposed, will do it.

In closing, I guess the best statement that I can give you is that my school board paid for me to come here today, all the way up from Fort Myers, Florida, to spend these few minutes with you. This is a very clear message that we think that the potential impact on our teachers, children, and communities that can result from this bill is really a worthwhile endeavor, and would ask you to move it along. We need this act badly.

There is an old 1960s poster that came out of the Environmental Studies Program that simply says, "that what we do speaks so loudly that we can't hear what you say," and I think it's time for action.

Thank you.

Senator BURDICK. In other words, you vote yes?

Senator HAMMOND. I do.

Senator BURDICK. I am especially interested in what we can do to encourage young people to consider careers in environmental protection. As a small step in this direction, we have provided for 150 internships in Federal environmental agencies for college-level students. Do you have any suggestions as to how we can improve this internship program, and if what we have done is in the right direction? Anybody?

Mr. PADALINO. I would support that, but as a start. If you think of a partnership with the National Park Service, with 337 units around the country, each of which could have an intern in environmental education, that's a wonderful thing.

Ms. BRADSHAW. We wholeheartedly support it. We think it's the right beginning. I do believe that an internship gives you the opportunity to have a hands-on experience, and hopefully, we would build some advocacy for citizens of the future through that effort.

I do think it would be important that it be clearly defined as to the kinds of liaison work you would have with the universities who are going to be involved in this. That would be an important support system for the agencies.

Senator **BURDICK**. Well, thank you very much. Thank you for your testimony today. We will probably talk to you again later.

Mr. **HAMMOND**. Senator, I also forgot to request that I would appreciate having permission to submit my written comments as follow-up.

Senator **BURDICK**. Pardon?

Mr. **HAMMOND**. I forgot to ask permission to submit my written comments as follow-up.[1]

Senator **BURDICK**. The record will remain open until the 15th of the month.

Mr. **HAMMOND**. Thank you.

Senator **BURDICK**. Thank you all again. The meeting is adjourned.

[Whereupon, at 12:07 p.m., the committee was adjourned, to reconvene at the call of the Chair.]

[Statements submitted for the record and the bill S. 1076 follow:]

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[1] Not received by date of Publication.

**TESTIMONY OF**
**F. HENRY HABICHT II**
**DEPUTY ADMINISTRATOR**
**U.S. ENVIRONMENTAL PROTECTION AGENCY**
**BEFORE THE**
**COMMITTEE ON ENVIRONMENT**
**AND PUBLIC WORKS**
**UNITED STATES SENATE**

**FEBRUARY 1, 1990**

Mr. Chairman and Members of the Committee, thank you for the opportunity to appear before you today to discuss S. 1076, the proposed "National Environmental Education Act."

Twenty years ago, we Americans made a profoundly important commitment -- a commitment to the future of our planet. Faced with mounting evidence of the ill effects from decades of environmental ignorance and indifference, we set off in a new direction.

Earth Day 1970 put environmental issues squarely on the national agenda, as millions of people across the country clamored for better air and water. Thousands of schools and colleges held environmental "teach-ins," and the media carried similar educational programs into homes across the country. The original Clean Air Act was passed later in the year. Before 1970 ended, the Environmental Protection Agency was created to institutionalize this new environmental awareness.

As a nation, we have accomplished a great deal since that historic outpouring of environmental concern 20 years ago. We can take pride in the successes of the past two decades. As individuals and as a society, we've learned that we can make a difference, that we can effectively address environmental concerns to improve our quality of life.

As we approach Earth Day 1990, the job is far from completed. Many of the environmental problems that sparked the first Earth Day are not fully resolved. We're discovering new, more difficult, more pervasive problems, which demand our attention -- all the energy, ingenuity, and dedication that we can muster.

Since his Inaugural Address, President Bush has urged the American people to embrace a new ethical awareness of nature, and our responsibility for its stewardship and wise use. During the past year, the first of his presidency, he has launched solid, wide-ranging environmental initiatives -- from advocating a goal of no net loss of wetlands, to sweeping proposals for strengthening the Clean Air Act, to stepping up Superfund enforcement. Last week, he announced his support for elevating EPA to a Cabinet department. I admire and I share the President's abiding interest in renewing this nation's commitment to conservation of the natural resources on which all human activity, including economic activity, depends.

It is the people -- individuals acting on their own behalf and that of their children -- who are the key to this new environmental ethic. The more they know, the more they understand, the more they benefit, the more active and involved they will be in making a personal contribution to environmental improvement.

This is why environmental education can play so substantial and important a role. Our environmental laws and regulatory programs are achieving their ends: protection from environmental hazards, improving the quality of our natural environment, broadening our base of knowledge. Yet this is no longer a sufficient approach given the magnitude and nature of the environmental problems we face. We must make great strides, too, in encouraging voluntary changes in individual habits -- to cut waste, for instance.

Heightened public sensitivity to the environmental consequences of individual and collective actions is a benefit of environmental education. Additionally, it is through environmental education that we can help prepare future environmental management professionals.

S. 1076 seeks to achieve these same three objectives:

- expanding and improving public understanding of environmental problems;
- fostering environmental education and training programs at the State and local levels; and
- encouraging young people to pursue careers in environmentally-related scientific and technical fields.

The Environmental Protection Agency strongly supports these underlying principles.

One of the major thrusts of the bill is its recognition of the need for college-level training in the environmental sciences, and it proposes an internship program to further this aim. We at EPA are especially aware of the need to ensure the presence of an ample supply of trained and qualified professionals in scientific and technical environmental fields both now and in the future.

A recent report by the National Task Force on Women, Minorities, and the Handicapped in Science and Technology indicates that without significant changes in the way this country recruits and trains its scientists and engineers, the projected U.S. labor force by the year 2000 will not be adequate to fill the scientific and technical jobs such as those at EPA. A number of EPA's predecessor agencies, especially the Public Health Service, had training programs that produced a cadre of well-trained engineers many years ago. These individuals formed the nucleus of a scientific community in the early EPA and demonstrated the success of this type of approach. Therefore, we support the proposal for environmental internships, although we would welcome the chance to talk further about the details of such a program.

Other Federal agencies are also taking steps to better prepare young Americans for scientific and engineering jobs. EPA is presently working with Admiral Watkins at the Deparment of Energy on his excellent Math/Science Education Initiative. This program is designed to improve the education of our students at all levels in mathematics, science, and technology.

S. 1076 further proposes to establish an Office of Environmental Education within EPA to coordinate environmental education activities within the Agency and those conducted by other Federal agencies and to foster environmental education programs at the State and local level. The Agency supports assigning one unit in EPA the primary responsibility for environmental education with a clear definition of its mission and goals. We are already moving in this direction.

Early last November, Administrator Bill Reilly and I established within the Agency an Environmental Education Task Force to catalogue all the work done under Agency auspices. Building on the strengths of existing programs, projects, and constituencies, the Task Force was charged with developing an effective environmental education program for the Agency.

The Task Force cuts across programs and media with representation from each major office within EPA. It consists of 25 senior Agency members and enjoys the participation of the National Governors' Association. It convened just after Thanksgiving to begin its work to develop a comprehensive strategy for environmental education at EPA. This strategy starts with four major objectives:

- Develop a strategic plan for environmental education by spring. This plan will present the Agency's approach, major actions, milestones, responsibilities, and resources over a four-year period.
- Sponsor, in conjunction with the National Governors' Association, the first Environmental Youth Action Forum in Washington, D. C. on May 20-23, 1990. The Forum will convene two high school students, one educator, and one environmental education coordinator from each State, as well as an international component. We are considering future national environmental youth forums, perhaps biennially, with our Regional offices sponsoring forums in the years in between.
- Investigate and develop options for financing the Agency's environmental education efforts.
- Inventory and assess current, on-going EPA environmental education activities.

This strategic plan, which I look forward to reviewing this spring, should provide the blueprint we need at EPA to consolidate and orient environmental education activities, to improve our effectiveness, and to define our national leadership role.

In addition to the on-going work of the Task Force, I would like to highlight several other EPA environmental education efforts:

## EPA's Center for Environmental Learning

The Center is located in the Agency's Region III Office in Philadelphia and sponsors environmental lectures featuring prominent speakers, forums, and seminars. These sessions, both within EPA and throughout Region III, focus on issues such as waste minimization, SARA Title III, air toxics, risk analysis and communication, indoor air pollution, environmental education trends, and dispute resolution. In the future, the Center plans dialogues on key issues among educators, nonprofit organizations, industry, and other constituencies.

## National Advisory Council for Environmental Technology Transfer (NACETT)

The National Advisory Council for Environmental Technology Transfer was established by EPA by Federal charter in June 1988. The Advisory Council consists of a group of independent experts drawn from government agencies, business and industry, academia, public interest groups, and the media. This group advises the EPA Administrator on technology transfer issues associated with environmental problems. NACETT's Environmental Education and Training Committee, one of NACETT's five standing committees, has as its goal the achievement of an environmentally conscious and responsible public. In mid-September, this Committee held national hearings, soliciting testimony and recommendations from over 40 national and international experts on the state of environmental education generally and how the Agency might best proceed in the next decade. These recommendations were submitted to the full Council for review in mid-January, and the final package of recommendations should be unveiled later this month. We look forward to learning the Committee's thinking.

### EPA's President's Environmental Youth Awards Program

The President's Environmental Youth Awards Program offers young people an opportunity to be recognized for their efforts to protect our environment. Students in any grade from kindergarten through twelve can participate as an individual or as a part of a class, school group, youth club, or summer camp. To be eligible, a student must plan and carry out an environmental project and must be sponsored by an adult who will advise and guide the student(s). President Bush awarded this year's participants a certificate and honored ten national winners in a White House ceremony in November 1989.

### National Network for Environmental Management Studies (NNEMS) Program

The National Network for Environmental Management Studies (NNEMS) Program is a cooperative effort of EPA and over 75 participating universities designed to produce high-quality graduate studies in environmental policy and management areas where the Agency has identified a real need. The Agency's identified needs are translated into research questions. Graduate students from any participating university are invited to submit written research proposals to EPA which, if accepted, are funded by the Agency. The program provides real world experience, learning opportunities, professional guidance, and encouragement to individuals pursuing careers in environmental protection fields. The Agency benefits by receiving completed priority research projects, identifying high quality recruits, and increasing public awareness of environmental problems. The research is disseminated to a national audience of public and private professionals and organizations in environmental management fields.

## Students Making a Difference -- Relevant Environmental Education

Our Region X Office in Seattle has initiated a pilot project which uses local environmental issues as a tool for illustrating the interrelationships between academic subjects and to help students understand their role in protecting the environment. The project has three elements: to develop an integrated environmental curriculum; to demonstrate resource potential of schools; and to show young people that they can make a difference.

The Region X Office is currently assisting three Seattle area high schools in developing integrated curricula which focus on important community environmental issues. EPA will fund one teacher from each school during the summer of 1990 to study his or her selected issue, to prepare class materials, and to assist fellow teachers in writing appropriate lesson plans. All materials will be shared to help other teachers develop similar projects.

We would mention here that a number of our sister agencies also are involved in environmental education. For example, the Department of Agriculture has in place a national network for the delivery of education and technical assistance programs. These programs, administered by the Extension Service and the Soil Conservation Service, address an array of environmental issues and are targeted at both youth and adult audiences in every county in the nation.

The basic objective of these programs is to achieve both an understanding of and the voluntary adoption of practices that sustain the integrity of the environment. As an example, USDA is implementing a water quality initiative that focuses on the use of agrichemicals and the implications of agricultural non-point source impacts on water quality. USDA is explaining to agricultural producers and other users of agrichemicals the environmental effects of agrichemicals and is providing technical assistance to encourage them to voluntarily adopt agricultural production practices that are both profitable and environmentally sound.

In addition, the President's 1991 Budget includes $500 thousand for a new Presidential Environmental Education Award program to be administered by the Council on Environmental Quality. This program is designed to stimulate the introduction of environmental education into elementary and secondary school curricula and to reward excellent teachers. The awards would recognize teachers, two from each State, who designed and implemented the most innovative and effective programs to teach students about the environment. CEQ will be transmitting legislative language for this bill shortly, and we believe that this legislation should be incorporated in any bill.

As you can see from EPA's on-going work I have highlighted, many of the activities which S. 1076 would authorize -- training programs, award programs, internships, fellowships, and grants -- are already underway at the Agency or are being contemplated. And so we feel philosophically very close to both the principles which underlie this bill, as well as many of the programs it envisions.

As you might expect, however, we have concerns about certain provisions of the bill. Two aspects of the bill, in particular, raise concerns for us. The first is the Environmental Education Trust Fund established by Section 10 of the bill.

The sum of $15 million would be authorized to be appropriated from the Trust Fund to carry out the activities contemplated by the bill. The Trust Fund would be financed by taking half the amount of any Federal penalty paid by pollution control violators and depositing it into the Fund. Normally, these penalties would go to the U.S. Treasury.

We must raise strong objections to the setting aside of any portion of Federal monies for the purpose of this bill. Further, while we do not object to a separate line item in the budget to fund these activities, we do not believe establishing a Trust Fund is necessary. Having said this, we do recognize the need for greater flexibility in funding expanded environmental education efforts. To this end, we are presently exploring alternative funding mechanisms, including the possibility of authorizing the Agency to receive private contributions for environmental education programs. We would like to work with the Committee staff on these issues.

A second concern is with Sections 2 and 4 of the bill. These sections refer to EPA and the proposed Office of Environmental Education as supporting the development of environmental education curricula. We are obliged to be both consistent and clear as to EPA's role in the evolution and use of educational curricula generally. A wide variety of expertise already exists in the areas of curricula development and production -- in universities, in non-profit groups and in research and education centers. In our view, EPA's role as lead agency under the bill should be one to encourage and to spark curricula development, education programs, and training materials -- not to develop them ourselves in-house -- or to be in a position to review or approve them. This approach would link us with groups who have considerable expertise in these and allied fields. We would also hope to share EPA's technical expertise with interested State, local, and non-profit entities.

In conclusion, let me applaud the Committee and you, Mr. Chairman, for your initiative in this important area of environmental education. I think we have an opportunity with legislation such as this to turn the awareness born of that first Earth Day 1970 into a powerful force to improve the environment.

We at the Agency look forward to working with the Committee and staff on the specifics of the bill, as well as on defining a vision for national environmental education.

I would be pleased to answer any questions you may have.

# COMMENTS OF
# THE NATIONAL WILDLIFE FEDERATION
# ON
# S. 1076

# NATIONAL ENVIRONMENTAL EDUCATION ACT

BEFORE THE SENATE ENVIRONMENT
AND PUBLIC WORKS COMMITTEE

PRESENTED BY GARY SAN JULIAN
VICE-PRESIDENT OF RESEARCH AND EDUCATION
NATIONAL WILDLIFE FEDERATION

PREPARED BY:

Judy Braus
Director of School Programs
RESEARCH AND EDUCATION DEPARTMENT
NATIONAL WILDLIFE FEDERATION

Doug Miller
Director of Alaska Natural Resource Center
AFFILIATE AND REGIONAL PROGRAMS DEPARTMENT

NATIONAL WILDLIFE FEDERATION

FEBRUARY 1, 1990

Chairman Burdick and Distinguished members of the Environment and Public Works Committee:

The National Wildlife Federation (NWF) welcomes this opportunity to present our views on S. 1076, the "National Environmental Education Act." The NWF is the world's largest not-for-profit conservation education organization with over 5.8 million members and supporters in 52 states and territories. The NWF has been involved in environmental education throughout our 53-year history, and has proven expertise in developing and disseminating environmental education materials, such as The CLASS Project, NatureScope, and Wildlife Week; training teachers in preservice and in-service workshops; sponsoring public education programs; and providing technical assistance to the environmental education community. This year alone, we are distributing more than 600,000 Wildlife Week Educator's Kits to America's schools, homes, nature centers, and museums, highlighting how children of all ages can take individual and group action to help protect the earth's resources.

Given the complex array of global environmental problems, we view this proposed legislation as a critical and necessary step in creating an environmentally literate citizenry. What does environmentally literate mean? In an environmentally literate society, every citizen has an understanding of how the world "works"--how ecological, technological, and social systems interact. Every citizen values the environment as the basis of human well-being. Every citizen understands that the earth's life support systems are fragile, and that each of us makes decisions every day that affect this support system. And every citizen possesses the skills and commitment to effectively participate in making informed and environmentally sound resource decisions. We believe we attain this literacy through education. And S. 1076 is a major step forward in realizing this crucial goal.

The inadequate implementation and ultimate demise of the Environmental Education Act of 1970 (PL 91-516) was a matter of great concern to our members and a setback in the nation's efforts to promote environmental literacy. We commend Senator Burdick and this Bill's many cosponsors on taking the initiative to once again restore our Nation's leadership in this vitally important and too long neglected educational endeavor. Without such legislation, tomorrow's leaders will be ill-prepared to solve the increasingly complex environmental problems they will face.

Overall, the NWF heartily supports the direction and content of this Bill. We believe it will provide the national leadership and needed support for environmental education. And we are particularly supportive of the recommendations to have the Bill implemented through the Environmental Protection Agency and funded through appropriations from penalties collected in response to the violations of key environmental protection regulations. We also endorse the provisions in this Bill to train teachers and other environmental professionals; to support the development and dissemination of innovative curricular and supplementary materials; to provide opportunities for student internships; and to recognize outstanding achievement in the environmental education field by sponsoring an awards program.

Although this Bill addresses many of the needs identified by the environmental education community, I would like to offer the following comments and suggestions as ways to strengthen S. 1076 and make it even more comprehensive and effective in creating the environmentally literate citizenry I spoke of earlier.

1. Given the recent Brundtland report "Our Common Future" and the work of international organizations such as UNEP (United Nations Environment Programme), it is clear that society has begun to recognize the global implications of environmental problems. We recommend inclusion of language specifically allocating funds in support of international environmental education efforts that are designed to increase international cooperation; exchange training methods, materials development, and dissemination models; promote international environmental education internships and staff exchanges; and support international networking.

2. We also support the efforts of the Bill to strengthen environmental education programs aimed at all levels of society, and would endorse language that recognizes specifically the importance of educating non-formal audiences, such as the general public, nature center and museum staffs, parents, and others. We would also encourage language that specifically promotes the development of materials and training programs aimed at meeting the needs of ethnic and culturally diverse audiences and individuals with special educational needs.

3. To make the most efficient use of funds, we would also like to see the required evaluation of existing environmental education networks and the continued funding of those networks with proven track records. For example, the Federally-sponsored ERIC (Educational Resources Information Center) network at Ohio State University has been instrumental in disseminating environmental education information through electronic and print mediums to all segments of society. Many other successful training and material dissemination networks already exist and need continued funding and support.

4. We hope that the proposed S. 1076 provision for internships is intended to also encourage and include the participation of teachers and other educators. We feel that by broadening the pool of participants beyond students alone, the internship program can help motivate professionals currently in the field. We also hope this provision is intended to encourage internships that provide environmental education experiences within agencies and organizations throughout the country, including internships in the Department of Education, the U.S. Park Service, the

Peace Corps Environment Sector, and other Federal environmental education programs. We would also support expanding the program to offer a limited number of internships in non-governmental organizations and international agencies.

5. In the same vein, we would support broadening the current national awards program called for in the Bill to include recognition for student achievement. By officially and publicly recognizing those young people that successfully carry out action-oriented and effective projects, it can motivate others to do the same.

6. And finally, it's been our experience that the expertise for educational training exists throughout the country--in schools, not-for-profit organizations, museums, nature centers, and other educational institutions and organizations. We would encourage language ensuring the continuation of proven and effective training initiatives, and we recommend that the newly created office of Environmental Education be encouraged to seek and, as appropriate, fund proposals from throughout the country that recognize and accommodate the different regional and grade level training needs.

The NWF has proclaimed the 1990s as the "Decade of the Environment." This will be the time when we MUST deal with global environmental concerns, or the global environment that our children inherit will be seriously degraded. This Bill provides the vision and leadership to help build the environmentally literate citizenry we need. We look forward to working with the Committee to ensure the timely passage of this Bill.

Working for the Nature of Tomorrow.

NATIONAL WILDLIFE FEDERATION, 1400 Sixteenth Street, N.W., Washington, D.C. 20036-2266

Office of the President

February 13, 1990

Dear Senator:

If there was any doubt about the intensity of support for environmental protection, the National Wildlife Federation survey of college students should banish it. Not only do our future policy makers and new voters believe environmental protection is important, but 70% say protecting the environment is an important factor in how they vote.

As a part of the Federation's ***Cool It!*** campus outreach program for Earth Day, we asked the Hughes Research Corporation to survey 500 undergraduates in four-year colleges or universities. The results are revealing:

- 95% say Congress should pass tougher laws to protect the environment.
- 76% believe industry forces government to pass less effective laws for protecting the environment.
- 81% agree the federal government should spend more on protecting the environment and less on defense.
- 70% would not sacrifice environmental quality for economic growth.
- 94% believe college students can make a difference in protecting the environment.

Also enclosed is a list of the campuses that have organized programs to directly or indirectly help solve the problem of global warming. It has been encouraging to see the support and enthusiasm of young people for making a difference on the environment.

On behalf of the Federation's 5.8 million members and supporters, I urge you to heed the views of our nation's college students and work for stronger environmental laws.

Sincerely,

Jay D. Hair

JAY D. HAIR

JDH:sln

NATIONAL WILDLIFE FEDERATION
**NEWS**
PUBLIC AFFAIRS DEPARTMENT, 1400 16th Street, NW, Washington, DC 20036-2266 (202) 797-6850

HOLD FOR RELEASE UNTIL:
February 14, 1990

FOR MORE INFORMATION, CONTACT:
**Charles Miller (print), 202-797-6853**
**Phil Kavits (broadcast), 202-797-6852**

# SURVEY REVEALS STRONG CONCERN FOR ENVIRONMENT AMONG STUDENTS

WASHINGTON, D.C. -- Today's generation of college students, often maligned as materialistic and socially disconnected, are actually deeply concerned about the environment, with 95 percent agreeing that Congress should pass tougher laws to protect the environment, and 94 percent willing to pay more for products that are environmentally safe, according to a new opinion survey commissioned by the National Wildlife Federation (NWF).

The survey was conducted in November 1989 by Hughes Research Corp., a national research firm based in Rockville, Md. Five hundred undergraduate students between 17 and 24 years of age were surveyed. All were enrolled in a four-year college or university. Approximately one-half were male and one-half were female. Based on the sample size, the survey results can be considered accurate to within plus or minus five percentage points.

Other key questions of the survey revealed strong sentiments on behalf of environmental quality:

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* Nearly 75 percent believe that recycling of newspapers, glasses, and cans should be required by law in all communities.

* While 66 percent believe that industry today is more concerned about environmental protection than it was five years ago, 76 percent believe that industry influences government to pass less effective environmental protection laws. And students take their environmental concerns into the voting booth, with more than 70 percent agreeing that environmental protection is important in electoral decisions.

* Nonetheless, 80 percent believe that "all of us" have primary responsibility for protecting the environment, with only 24 percent laying responsibility on the doorstep of the federal government.

"We are tremendously encouraged by these results," said NWF president Jay D. Hair. "College students are expressing a deep concern for the environment, and the overwhelming majority are clearly willing to do something about it."

According to Tom Hughes of Hughes Research Corporation, "Given their intense concern for the environment and their willingness to get personally involved in this issue, this survey paints the picture of American college students as a formidable resource ready to go to work to help solve our environmental problems."

Hughes Research Corporation was founded in 1988 by Thomas B. Hughes. With two decades of experience, Mr. Hughes has conducted

-more-

more than 2,000 individual survey research projects, and currently serves on the board of directors of the Marketing Research Association.

The National Wildlife Federation is the nation's largest conservation organization, with more than 5.6 million members and supporters and 52 affiliate organizations nationwide. A private, not-for-profit organization, the Federation was founded in 1936.

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#90012

NOTE TO EDITORS: This year the National Wildlife Federation launched a new project challenging college students to organize programs on their campuses that will directly or indirectly help solve the problem of global warming.

Enclosed is a list of the campuses that are currently participating. For more information, contact Nick Keller at (202) 797-5868.

Working for the Nature of Tomorrow.

NATIONAL WILDLIFE FEDERATION, 1400 Sixteenth Street, N.W., Washington, D.C. 20036-2266 (202) 797-6800

Public Affairs Department

## COOL IT! PROJECTS BY STATE

2/1/90

**ALABAMA**
Birmingham Southern College

**ARIZONA**
Mesa Community College
Northern Arizona University

**ARKANSAS**
Hendrix College

**CALIFORNIA**
Crafton Hills College
University of CA-Irvine
Cal State Poly-Pomona
Marymount College
University of LaVerne

**COLORADO**
University of Denver
Colorado College
Colorado State University
University of Colorado-Boulder, Law School

**CONNECTICUT**
Wesleyan University
Mohegan Community College
Manchester Community College
Yale University

**DISTRICT OF COLUMBIA**
Howard University
George Washington University
Georgetown University

**FLORIDA**
University of Florida
University of Miami

**GEORGIA**
DeKalb College
Georgia Institute of Technology
Spelman College
W. Georgia College

**ILLINOIS**
Highland Community College
Illinois College
Southern Illinois University
University of Illinois- Urbana Champaign

**INDIANA**
University of Evansville
Ball State University

**IOWA**
Kirkwood Community College
Central College
Iowa State University

**KANSAS**
Fort Hays State University
Southwestern College

**KENTUCKY**
Berea College

**LOUISIANA**
Centenary College

**MARYLAND**
St. John's College

**MASSACHUSETTS**
Northeastern University
Merrimack College
Dean Jr. College
Springfield Technical Community College
Tufts University
Harvard University/Radcliffe College
Northern Essex Community College
Wheaton College
Bradford College

**MICHIGAN**
University of Michigan
Kalamzoo College
Hope College

**MINNESOTA**
Concordia College-Moorhead
Concordia College-St. Paul
St. Olaf College
Metropolitan State University
Moorhead State University
Carleton College
College of Saint Benedicts

**MISSISSIPPI**
University of Mississippi

**MISSOURI**
Stephens College
Washington University
Drury College
**NEBRASKA**
Concordia College-Seward

**NEVADA**
Western Nevada Community College

**NEW HAMPSHIRE**
University of New Hampshire

**NEW JERSEY**
Stevens Institute of Technology
Stockton State College

**NEW MEXICO**
Western New Mexico University
College of Santa Fe

**NEW YORK**
Union College
Potsdam College
Rochester Institute of Technology

**NORTH CAROLINA**
North Carolina State University

**NORTH DAKOTA**
University of North Dakota
North Dakota State University
Little Hoop Community College

**OHIO**
Wittenberg University
Miami University
Denison University
Kent State University

**OKLAHOMA**
Oklahoma Baptist University
University of Tulsa

**PENNSYLVANIA**
College Misericordia
Slippery Rock University
Juniata College
Villanova University
Ursinus College
Penn State University
Swarthmore College
Saint Joseph's University

**RHODE ISLAND**
University of Rhode Island
Johnson & Wales University

**SOUTH CAROLINA**
Erskine College
Wofford College
Furman University

**SOUTH DAKOTA**
Black Hills State University
Sioux Falls College

**TENNESSEE**
Tennessee Tech University

**TEXAS**
Texas A&M University
McMurry College
Austin College

**UTAH**
University of Utah

**VERMONT**
St. Michael's College
Vermont Law School
University of Vermont

**VIRGINIA**
College of William & Mary
Mary Washington College
Northern Virginia Community College
Roanoke College

**WASHINGTON**
Edmonds Community College
Highline Community College

**WISCONSIN**
University of Wisconsin-River Falls
University of Wisconsin-Stout
Milwaukee School of Engineering

**WYOMING**
Sheridan College
Western Wyoming College

# TESTIMONY OF
# STEVEN KUSSMANN
# CHAIRMAN, ALLIANCE FOR ENVIRONMENTAL EDUCATION

BEFORE THE
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

UNITED STATES SENATE

ON

THE NATIONAL ENVIRONMENTAL EDUCATION ACT

S. 1076

FEBRUARY 1, 1990

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My name is Steven Kussmann and I am Chairman, Alliance for Environmental Education. The Alliance is a 501-C3 organization and is the nation's largest environmental education organization. Established in 1972, the Alliance serves as an advocate for a quality environment through education and training and advances communications, cooperation and exchange among its member organizations and key audiences. Currently the Alliance is comprised of more than 80 member organizations, which include environmental, educational, business, labor, health, civic, professional and public interest groups. These organizations collectively represent more 20 million people. I also am Director, Communications Programs for the American Gas Association, a national trade association representing natural gas distribution and transmission companies. It is a privilege to appear before this committee and to offer my perspective on the National Environmental Education Act and your efforts to renew the federal government's commitment to environmental education.

Today I speak for the Alliance for Environmental Education. I will begin by giving general views on environmental education and then addressing specific points related to the National Environmental Education Act.

Last September, it was my honor to co-chair a two-day public hearing on education, training and sustainable development. The purpose of the hearing was to examine education strategies that would allow our nation to achieve its twin goals of environmental quality and economic progress. More than 40 expert witnesses representing a broad spectrum from educational and training institutions, public interest organizations, business, the media, and professional societies addressed the hearing, which was entitled "Planet at Risk: Charting an Environmental Ethic."

Most appropriately, the hearing was kicked off with thetestimony of 13-year old Cathy Bell from Closter, New Jersey. As a fifth-grade student from the Tenakill School in Closter, Cathy was a co-founder of the student environmental education organization "Kids Against

Pollution." That group now has more than 500 chapters in 47 states and 3 countries. Cathy's message to us was clear. She said that a clean environment is both the right and the responsibility of all of us and her message set the tone for the entire hearing. Cathy said that members of "Kids Against Pollution" want a constitutional amendment guaranteeing clean air and land.

The hearings underscored a number of important points that are relevant to your deliberations. We were reminded that, in the formal education sector, environmental education should be infused across the curriculum; that it stimulates an interest in math, science, economics, the arts and other subjects, and that by making education relevant it motivates young people to stay in school. We were told that networking and establishing partnerships across both traditional and non-traditional boundaries were key to empowering the process of environmental learning. We were enlightened about the important role minorities must and will play in solving environmental problems, as well as the need to localize environmental education initiatives. We reviewed the concept of learning as a life-long process that continues in the workplace, at home, through the media and in places of worship long after formal schooling is completed. We discussed the impact of television and movies on environmental behavior of our citizens. We were exposed to new educational technologies that greatly enhance the transfer and networking of information and data. We became aware of the tremendous amount of information and quality environmental education and training resources that already exist. These materials, courses and programs have been created in universities, by public-interest groups and environmental organizations, by businesses and industries and by state, local and federal government agencies. The very best of these incorporate excellent strategies, use interesting materials that span many subject areas, provide hands-on, real life application of the knowledge acquired, emphasize problem solving, and train teachers to use the resources and follow up with continuing training and support. Indeed, entire curricula have been developed and implemented to address many of the current environmental issues and problems facing our nation.

The "Planet at Risk" hearing also made it abundantly clear that sustainable development -- economic progress with environmental quality -- can only be achieved if our society changes its values and attitudes toward the environment and development. And how else but through education at home, in school, on television, in the workplace, and as part of religious training are these new values and attitudes going to be developed? How else but through a process of lifelong learning can the environmental ethic on which sustainable development depends be established? There is no better way. That is why it is so important that institutions around our nation -- government institutions, educational institutions, environmental institutions, business institutions -- all of the institutions that establish and guide environmental and economic policy, become advocates for environmental education and training.

That is why the Alliance for Environmental Education believes it is critically important that our nation and other nations of the world develop environmental education networks and partnerships. These networks would lead our efforts to infuse environmental learning strategies across the educational system, including both formal education in our schools and informal education that takes place at work and in the home. Such networks can be used to improve teacher training, curriculum development, public participation and environmental education research. They would be conduits through which electronic technologies and other communications and program innovations could be tested. Networks also reflect new realities that make their chances for success significant. The research and experiences that support the success of networks are extensive. Let us examine this optimistic climate and observe how it can help us chart a course for success.

To begin, public concern for the environment and the health effects of pollution has never been greater. That awareness is poised to be transformed into meaningful political action at all levels of government. Consumer response to pollution concerns is causing more and more businesses to reasses their attitudes toward the environment. Industry and consumers can no longer afford the mega-billion dollar cleanup expenses we face annually to restore the air, land and water that sustain us. These forces are propelling our nation toward the goal of sustainable development. They are the forces that have led this distinguished body to hold hearings on a new environmental education initiative. It is most appropriate that you who must debate the strategies and costs of addressing so many of our environmental problems are also the ones that have in your hands today the opportunity to stem the tide of pollution and environmental degradation by empowering the forces of environmental education and training. As we move forward toward our goal of sustainable development, we must harness the resources and imagination of the federal, state and local governments, large and small businesses, educational institutions, interest groups and individuals to change the way our society treats the environment We must broaden our understanding of the environment by expanding the definition beyond the traditional "natural environment" to encompass interaction between nature and society. We must establish a national environmental ethic.

Now let me tell you something about the Alliance and the Network for Environmental Education that we are developing. The Alliance is a diverse organization and our members often fall on opposite sides of an issue. But we all share a common purpose that is stronger than our differences. We all are advocates for environmental education. We support the balanced and fair examination of environmental issues, and believe we all benefit when the public is exposed to various points of view. This approach supports our belief that education leads to cooperation and understanding, to progress on environmental issues and to the development of an environmental ethic. Since its formation, the Alliance has fostered this philosophy by sponsoring research, conferences and other initiatives to identify and implement a national environmental education strategy.

The research programs and analysis conducted by the Alliance have taken us down many roads, but over time we have learned that environmental education is best conducted at the grass roots level. *Local* efforts need state and regional support and cooperation, yet *national* leadership, coordination and communications are essential to the success of the process. Determining how to effectively combine these elements was not easy, but we did discover the answer. It was brought into focus during the first National Congress for Environmental Education held in Burlington, Vermont in 1983. A major finding of the conference was that "A network for the promotion of environmental education, training, research and communications, which involves the various groups concerned with the environment and development, should be established." This finding led the Alliance to consider and adopt in 1986 a project now known as the Network for Environmental Education as its major undertaking for the next decade. This network was modeled after a successful environmental education network established in 7 southeastern states by the Tennessee Valley Authority. For 10 years, TVA centers for environmental education have operated on the campuses of colleges and universities, linked with similar centers on other campuses. Through this network, they were supporting one another with research, educational programs, communications and ideas. The model captured the imagination of the Alliance but we wondered if sufficient grass roots support existed to expand it naturally.

To find out, we took the network concept around the country through a series of 5 regional meetings. At those meetings the concept and model were reviewed and discussed by more than 400 individuals from industry, education, environmental groups and government. A common chord had been found among all the constituents. Support for the network was overwhelming. We learned what changes had to be made in the model to fit the needs of our nation, and the idea was refined. With the process of implementation under way, the network is becoming a national and international system of environmental education and training centers based at colleges, universities and other institutions. To date, 40 such centers are in existence and by the end of this year 100 centers will be in operation. As part of the Network, each center serves a designated geographic area with programs and services that include teacher and professional training, community outreach, program adaptation and development, and environmental education research. Each center is advised by a board comprised of members of the community it serves. Centers are supported regionally by one of six councils for environmental education. Nationally they are supported by the Alliance and its partners in the program. The centers are being linked through conferences, seminars, and various communications technologies including EcoNet, an environmental computer network. We are looking for others to join our efforts and we are open to new approaches that can be employed through the Network to educate and train our citizens to develop the values and skills needed to deal with the new generation of environmental issues that confront us.

Among the ways we see the network helping to address these issues is through risk reduction research and the transfer of that information to individuals and organizations that most need it. We see our centers combining resources to pool information on strategies to achieve important communications on economy-of-scale benefits. We see the centers used to involve state and local officials and other key constituents in the process of resolving environmental problems. We see them educating the public about the nature of pollution and the steps individuals can take to prevent pollution. We see the centers infusing environmental studies into business and engineering curricula, preparing tomorrow's leaders to deal with environmental issues.

All of these actions are based on partnerships. Partnerships that involve national, state and local participation. Partnerships that extend our communications and help us avoid re-inventing the wheel. Such partnerships are fundamental to any and all efforts to carry out effective environmental education programs.

The federal government has a critical role to play in this entire effort. We believe that the passage of S.1076, the National Environmental Education Act, is desperately needed and we are delighted to see you take the lead in addressing this need. I should note that the Alliance played a role in authoring the section of the "Blueprint for the Environment" that called for a new environmental education act. We would hope that the Act of 1990 would differ considerably from the one that was passed in 1970, reflecting the changing times. Issues have evolved. The relative absence of the federal sector from environmental education over the past decade has been met with a resurgence of interest from other organizations. However, our nation needs strong federal participation and leadership in environmental education. The Environmental Protection Agency has come to realize that its success depends as much on environmental protection and understanding as it does on regulation and enforcement. But no sector, not even the federal government, can handle this job alone. The Environmental Protection Agency recognizes this fact and is already building networks and partnerships to utilize existing resources and to develop and disseminate environmental education and training program materials. We are pleased that this committee acknowledges the importance of education as an integral part of the solution to our nation's critical environmental problems.

Specifically, the Alliance supports the formation of an Office of Environmental Education within EPA, housed, within the Office of the Administrator. Today no other department or agency is as appropriate as the EPA to provide leadership for this effort. While there are many environmentally minded organizations in the federal government, only the EPA has as its sole mandated purpose the protection of our environment. With its intensified focus on pollution prevention and risk reduction, the EPA already has acknowledged the critical importance of education and training in carrying out its mission. The agency recognizes that a well-educated and informed public and a highly trained workforce are critical to the success of its efforts to extend beyond its traditional boundaries of command and control and to look to pollution prevention as its primary goal. The Alliance has been particularly pleased to see this effort exemplified through EPA's office of Cooperative Environmental Management, where the issues of technology transfer and training and education have melded together to reinforce the importance of education and training to the agency's mission.

We also support the bill's provision for an advisory council to the Administrator on environment education. We would, however, point out that such an advisory council already exists at EPA. Indeed, EPA's National Advisory Council on Environmental Technology Transfer (NACETT), Committee on Environmental Education and Training has been meeting and discussing important environmental education issues for more than a year. It was the NACETT Committee on Education and Training that co-sponsored the "Planet at Risk" hearing with the Alliance and together we are preparing a report on that hearingto be released publicly next month. Utilization of the NACETT Committee on Environmental Education and Training, as the federal government's advisory council on environmental education, would allow this transition process to move along much more quickly, taking advantage of the good work already accomplished.

EPA's recognition of the importance of technology transfer in accomplishing its mission has enabled the NACETT committee to expand the education and training mandate for EPA well beyond the tradition scope of environmental education. It is also worth noting that the NACETT

Committee on Environmental Education and Training already has recommended that the Administrator redefine the agency's mission to encompass a broad environmental education and training mandate, emphasizing the importance of national and international networks, and that he establish an Office of Environmental Education and Training within EPA's Office of the Administrator. The functions of this office would include the development of a national environmental education and training policy and associated short- and long-term implementation plans, as well as an annual report on the status of national environmental literacy and behavior.

The Alliance strongly supports the federal coordination provisions of the proposed Act. We believe that EPA's leadership should be extended to oversee this coordination and that if possible, the Department of Education's Federal Interagency Committee on Education (FICE) be utilized to assist in this effort. We do, however, have some concerns that FICE is not adequately supported by the Department of Education. Further we are concerned that the Department's focus on formal education may preclude coordination of essential non-formal educational activity.

The Alliance has strong reservations regarding the

Environmental Education Institute as proposed in the legislation. In the past, there was strong support for such a national center for environmental education, however, this is no longer true. Early in the 1980s, as I mentioned earlier, environmental education leaders recognized that a de-centralized network of environmental education centers is a much more effective mechanism to deliver services than a single major environmental education center or institute. Such a network can capitalize on existing resources and provide direct access to the grass roots, the level on which education must take place in order to be relevant and effective. The concept of a national center for environmental education or national institute is now rarely even a topic of discussion. The national environmental education institute described in your draft appears very similar to the old national center concept. I urge you to move cautiously here because this is an idea whose time has come and gone. If your act builds upon the progress that already has been made and capitalizes on such partnerships as our Network for Environmental Education, you will enable the federal sector to play its leadership role more effectively.

Another important resource that should be noted in the legislation is the Environmental Education Clearinghouse at

Ohio State University. This Educational Resources Information Clearinghouse (ERIC) for Science, Mathematics and Environmental Education has established an effective method of disseminating its information through the nation's libraries, via print and electronic media. In your deliberations, you should also recognize that the public schools are not the sole focus of environmental education. In fact, the major institutional support for the development of environmental education materials in recent years has been through 501-C3 organizations, business and industry groups. Many inspired school teachers and a number of enlightened schools have also played an important role.

The public schools will always be an important focus for delivery of environmental education; nevertheless, we must recognize that the nation's educational system is much larger than its system of formal schooling. Adult education is also very important. Town officials, developers, people in business and other decision makers also must understand evolving environmental problems and what they can do to address them. Reaching these other populations is essential if we truly hope to solve environmental problems. Your Act should recognize these diverse delivery systems and target audiences.

We recommend also that the internship program contained in this legislation be broadened so that it is not restricted to summer. Many colleges now encourage their students to enter internships as an alternative to a regular semester on campus during the school year. Additionally, it is important to recognize that there are many people who would benefit from internships in addition to college students. In-service teachers, for example, might enter an internship as part of a sabbatical leave. We also recommend that the maximum length of an internship be expanded to four to six months, at least the length of an academic semester.

The Alliance commends your awards program. It is good to acknowledge significant accomplishments in environmental education. However, you might wish to consider adding awards for leadership in government, public service organizations and business and industry to those already designated in the legislation.

The funding mechanism proposed by the legislation is particularly innovative and indeed the Alliance strongly supports the concept of polluters paying for environmental education. Fundamental, though, to any funding strategy is reliability. Political change, budgetary crunch or other forces may mean that funding approved one year disappears the next, as was the case with the Environmental Education Act of 1970. The Alliance believes it is imperative that the committee find a strategy that will ensure long-term and consistent funding for the Act so that the long-term process of environmental education does not get side-tracked at the federal sector by annual fiscal problems. We believe that the current funding level is adequate for the job that needs to be done by the federal sector. As with every federal program, much more could be spent, but we believe that the strategy provides adequate funds for the programs established by the Act. We do however, propose that you go one step further and establish a foundation for environmental education. This foundation would receive and disburse the funds provided under the funding section as well as funds raised from the private sector. In this way you will establish a public/private partnership and a stable footing for environmental education that will truly be able to address the long-term needs of environmental education in the United States.

We believe that, with the kinds of modifications we have noted and a fundamental shift in the philosophy of the legislation to encourage the development of networks and partnerships between the federal sector and the broad-based environmental education community that exists in our nation, the National Environmental Education Act of 1990 will not only win broad support, but that it will make a significant difference to environmental protection in this nation. The Alliance for Environmental Education strongly supports your efforts to pass the National Environmental Education Act. We are ready to work closely with you and your staff to complete the crafting and enactment of an effective bill.

Thank you.

# Testimony of Peggy Cowan
# Before the Senate Subcommittee on Environment and Public Works
# on February 1, 1990.

Mr. Chairman and Members of the Subcommittee:

My name is Peggy Cowan. I am the president of the Western Regional Environmental Education Council and the Science Specialist for the Alaska Department of Education.

The Western Regional Environmental Education Council and the State of Alaska appreciates the opportunity to comment on S. 1076, the National Environmental Education Act, which would advance and develop environmental education and training. We endorse the Act, S. 1076, and thank the sponsors of the Bill and this committee for their recognition of the critical role of environmental education in preparing our citizens and country for a healthy future. The Federal Government's leadership and support has critically influenced environmental education in the past, and can continue to do so.

I represent the Western Regional Environmental Education Council, an organization of representatives of resource and education agencies of the thirteen western states. Though a regional organization, the Council has been successful in promoting quality environmental education nationally through its two programs, Project Learning Tree and Project WILD. The Council was established with funds from the first Environmental Education Act. These funds acted as a catalyst to initiate programs which are now important components of environmental education in our schools nationwide. Both programs include supplementary curriculum materials and state sponsored training programs. They are the two most widely used conservation education programs in the K-12 classrooms in the U.S. Project Learning Tree is officially adopted in 47 states and provides a model for co-sponsorship with the private sector, in this case the American Forest Council. Project WILD will soon be adopted by 49 states and is co-sponsored by the Western Association of Fish and Wildlife Agencies, another example of a partnership which has benefitted U.S. students. Together these programs have trained more than 500,000 training participants and reached more than 30 million students.

Federal leadership can lead to beneficial cooperation between states. On their own, it is difficult for states to work together on a national or regional basis. The Federal Government can facilitate this exchange and establish mechanisms to encourage and disseminate successful programs. Environmental education is not a priority in all of the states I represent. Federal leadership and vision can encourage early childhood through college educators in all states to meet their obligation to prepare students to make decisions on environmental topics.

The critical issues of institutional approach for the implementation of the goals of this act, hinge on the ability of any institution to establish real partnerships between the education community and resource agencies, and to address all elements of environmental education. Environmental education of the '80's and into the '90's encompasses the total environment, natural and human-made, and is global in scope. If the program and the Office of Environmental Education is housed in the Environmental Protection Agency it will be important to ensure that the environmental topics are broader than those in the mandate of this single agency. The topics of environmental education include those of other agencies such as the Department of Interior and the

Department of Agriculture. The institutional sponsor will need to ensure a true partnership with all resource and education agencies nationally to locally. The present act does not adequately spell out the relationship with these other resource agencies, many of whom are currently contributing significantly to environmental education. The U.S. Fish and Wildlife Service, for example, has grant programs that are contributing to wildlife education in many regions already. This program and others are workable vehicles with systems in place and should be considered when assessing the needs and opportunities of environmental education nationally. Educators will be the audience and often the implementors of the programs of this bill. The partnership established by this act, should allow and take advantage of educational expertise and leadership in these programs. Current educational research on effective instructional practices and curriculum development has much to contribute to environmental education. The education agencies and the schools can provide this expertise, along with experiential knowledge of what works, and a practitioner's perspective on what is needed and what will make a difference.

The Advisory Council can play a critical role in establishing this partnership and the national vision of the program. The other Federal resource agencies should be included in this council, perhaps in the ex-officio role of the U.S. Department of Education. The National Science Foundation's Directorate for Education Science and Engineering, with its extensive experience in providing grants to education agencies and organizations, should also be included either in the Council or coordinated with in another manner. In establishing the Council, I encourage the Department to ensure that primary, intermediate and secondary education representatives are all included; that the university representatives include both education departments and representatives from fields associated with the environment, such as the sciences, political science, sociologists, rural development and geography; that representatives from both state education and resource agencies be included; and that the industry representatives include someone from resource consuming industries along with someone from an industry, such as tourism, that is less resource consuming.

The Environmental Education Trust Fund appears to be a mechanism with the potential for providing sustained funding for the projects of this program. That sustained, dependable support is critical. Irregular funding plagued the programs of the first Environmental Education Act and undermined their success. There are many good programs with potential for benefitting large audiences that are not meeting their potential due to lack of adequate funding. Any funding mechanism for this program should provide for substantial resources over the long term. The present $15 million is a minimum.

The list of activities of the bill, teacher training, grant awards, internships and recognition programs have the potential for valuable contributions. The designated mix of these activities and specific implementation of them can be strengthened. There is a disproportionate amount of funding, 70%, dedicated to the activities of the Office and the single training program. This bill, as a whole, should fund currently under funded programs which have proven successful and new programs in areas of assessed need. The training program, as described in the bill in Section 5, would have limited impact nationwide. Establishing a single training program would reach too few individuals and does not recognize the regional differences in our environment and educational concerns. Such a program could be meaningful for the select individuals that are able to attend, but is not an effective use of 30% of the total resources of the program. Establishing a number of training programs regionally around the country and funding continuing training experiences using the teacher-teaching-teacher multiplier model would enhance environmental education beyond the few individuals who could attend trainings at the centers. Programs of up to a month of sustained training, will limit the number of individuals reached, but provide a minimum of instruction to prepare the trainees to be real change agents back in their states and schools.

The training program and the other programs of the Office of Environmental Education should fit a broader definition than in the current bill. Environmental education includes awareness, knowledge, attitudes and skills; addresses the environment in its totality; and has as a goal motivating students to make responsible personal and citizenship decisions, and to take responsible actions which contribute to a quality global environment now and in the future. It is interdisciplinary in nature and includes instruction in science, social studies, including economics and political science, technology, mathematics and language arts. An environmental education lesson teaches not only the life cycle of a salmon, but the political and economic decisions that determine its management, the international ramifications of the management policies, and the natural and human threats to healthy salmon populations over the long term.

The grant program in section 6 provides the greatest opportunity for making a difference nationally and should be funded at a level that reflects this potential and guarantees its success. The educational reform that is now needed in this country, and which various reports on environmental education and other disciplines, most recently the American Association for the Advancement of Science's 2061 report, are calling for, is comprehensive. True change must focus on the learning needs of all children, cover all grades and subjects, and deal with many components and aspects of the educational system. There is a new recognition that simply patching up one part of the system will accomplish little. Environmental education programs, because of their holistic approach and interdisciplinary nature, are especially suited to meet the challenge of comprehensive change. The $100,000 cap on the grant program, in Section 6(i), is too limiting for these comprehensive programs. Most good programs will also require multiple year projects. Up to three to five year projects should be funded, with annual review. Again, the grant program should be careful to fund projects that supplement, rather than supplant existing successes. There are not enough resources available to recreate the wheel in environmental education. At the same time, we have not reached all audiences, nor addressed all areas of environmental education successfully, so there is definitely room for new initiatives.

As with the overall program, the grant programs should not be restricted to the mandate of the Environmental Protection Agency. Section 6(c)(4) allows the Administrator of the EPA to establish priorities. These priorities should be based on a holistic definition of environmental education, not on the specific priorities of the protection offices of the agency. When identifying eligible recipients, the school system certainly needs targeting, but non-formal education from youth groups to media should not be neglected.

Again, as with establishing the training centers, localized training and curriculum programs which recognize the environmental differences across our country and provide local relevance should be encouraged. Depending on how it is interpreted in regulation, Section 6(c)(1) may be too restrictive.

There are not enough resources to fund the eligible activities in Section 6(a) (2) and (3), unless these are directed more specifically to education needs. As presently described, these grants would provide research opportunities to investigate environmental issues or pollution problems. Such research opportunities are, and should be, available through other programs.

The internship program, in Section 7, is an excellent and valuable component of the Act, but in only addressing college students, it is too limiting. Reaching students early is important in influencing career decisions. At the same time, it is teachers who reach the greatest number of students, who need to be retained in the schools, and who need to have their understanding of the environment enhanced. The U.S. Department of Energy's two internship programs for teachers and high school students provide good models for reaching these audiences. The Department of Energy's High School Honors Program sends seven students from every state to work in DOE labs in the summer. Similarly, Energy's Teacher Research Associate Program pays teachers for summer work in their labs. The environmental agencies could offer just as rewarding experiences for students and teachers. Resurrecting the Youth Conservation Corps with an emphasis on environmental education would allow agencies to get needed work accomplished while providing meaningful job and educational experiences for our youth. The college intern programs now in the bill could be tied in with the Cooperative Higher Education Programs which now lead to jobs in the resource agencies.

The teacher award program that provides a model for strengthening the educators award in the bill is the Presidential Award for Excellence in Math and Science Teaching. This award program meets two objectives by providing recognition to deserving educators and also by encouraging the dissemination of quality teaching practices. The key elements that lead to this success are high visibility in every state, because each state has an awardee; validation of the importance of the practitioner by being for teachers only; a grant award program that provides $7500 to each recipient's school; and the stature and quality of the activities and sharing that occurs between all recipients on their trip to Washington D.C. to receive the award. I encourage you to include as many of these elements as possible in the "Outstanding Environmental Educator Award." The National Association for Environmental Education and the National Wildlife Federation, to name only two, also sponsor a series of environmental education awards. The EPA awards should again supplement rather than supplant these existing programs.

I encourage you all to support the National Environmental Education Act and its recognition of the important role of environmental education in this country. I also encourage you to modify the Act to ensure that it makes the most effective use of funds to support the environmental education needs of the states and local communities. Forming true partnerships between the resource and education sectors, funding what has already been proven successful and programs of assessed need, and supporting fundamental change of school programs, will help us meet the goal of an environmentally literate citizenry.

Thank you for the opportunity to discuss this important legislation. I would be pleased to answer any questions you may have.

# STATEMENT FOR THE RECORD

OF

KATHY McGLAUFLIN
BOARD MEMBER
NORTH AMERICAN ASSOCIATION FOR ENVIRONMENTAL EDUCATION
and DIRECTOR, PROJECT LEARNING TREE
BEFORE THE

COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

OF THE

UNITED STATES SENATE

FEBRUARY 1, 1990

Testimony on S. 1076, the National Environmental Education Act

Statement for the record from Kathy McGlauflin, Board member, North American Association for Environmental Education, and National Director, Project Learning Tree, to the Committee on Environment and Public Works.

The North American Association for Environmental Education would like to commend the committee for your important initiatives related to environmental education and thank you for asking us to testify on S. 1076, the "National Environmental Education Act."

The North American Association for Environmental Education fully supports the concept and intent of your legislation and we have specific recommendations to strengthen your bill.

The NAEE is a private, non-profit educational organization qualifying for non-profit status under Section 501(c)(3). It is a professional association established to assist and support the work of individuals and groups in environmental education, research, and service. In meeting the goals of its target audiences, NAEE promotes the analysis and understanding of environmental issues and questions as the basis for effective education, problem-solving, policy-making, and management. Through its activities, the association seeks to foster: (1) the education of skilled individuals able to understand environmental problems and possessing the expertise to devise effective solutions; and (2) development of a citizenry conscious of the scope and complexity of current and emerging environmental issues and supportive of ecologically sound solutions and policies.

NAEE was organized in 1971 and today is a comprehensive environmental education organization designed to meet the professional needs of the broad spectrum of teachers, educators, and communicators interested and involved in this field.

NAEE believes that Environmental Education should:

1. Consider the environment in its totality -- natural and built; biological and physical phenomena and their interrelations with the social, economic, political, technological, cultural, historical, moral, and aesthetic aspects;

2. Integrate knowledge from the disciplines across the natural sciences, social sciences and humanities;

3. Examine the scope and complexity of environmental problems and thus the need to develop critical thinking and problem-solving skills and the ability to synthesize data fropm many fields;

4. Develop awareness and understanding of global problems, issues, and interdependence -- helping people to think globally and act locally;

5. Consider both short and long term futures on matters of local, national, regional and international importance;

6. Relate environmental knowledge, problem-solving, values, and sensitivity at every level;

7. Emphasize the role of values, morality and ethics in shaping attitudes and actions affecting the environment;

8. Stress the need for active citizen participation in solving environmental problems and preventing new ones;

9. Enable learners to play a role in planning their learning experiences and providing an opportunity for making decisions and accepting their consequences; and

10. Be a life-long process which should begin at a preschool level, continue throughout formal elementary, secondary, and post secondary levels, and utilize non-formal modes for all age and educational levels.

There is an unquestionable need for appropriate federal action in the area of environmental education. A relatively small investment in education to increase environmental literacy in our citizens will result in wiser decisions in the future on environmental issues. These decisions will be more oriented toward sustaining both our environmental and economic well being. Environmental education can be viewed as preventive medicine.

It is clear that many aspects of your proposed bill address important needs related to environmental education. It appears that you have included many of the best aspects of the early 1970's National Environmental Education Act and have gone beyond that landmark legislation by adding several new and unique components.

The inclusion of grant provisions, the Environmental Education and Training Program, Environmental Internships, and the proposed National Environmental Education Awards can be important and worthy contributions to our national efforts to educate the public about global environmental issues and how to address those issues responsibly.

However, we would like to raise some issues for your consideration as ways to strengthen the bill.

**1. CLOSER TIES TO THE DEPARTMENT OF EDUCATION ARE NEEDED**

Although your bill is, essentially, an education bill, we see relatively little reference to and/or direct involvement by the United States Department of Education. It would seem that, since the Department of Education is in almost continuous contact with the schools of our nation, that agency would be in a postion to also play a major role in achieving the objectives of the bill. A separate office is needed to deal with this high priority area, and the EPA with its responsibility for maintaining environmental quality, can be a logical place for such an office. However, the Department of Education should be charged with the responsibility of cooperating with EPA to promote environmental education.

## 2. SUPPORT EXISTING NETWORKS

NAEE supports a broad-based approach to environmental education and recommends that the bill encourage the continuation and development of exemplary programs within the formal and non-formal systems. While there is reference to the programs and activities of other federal agencies, non-profit organizations, museums and nature centers, the bill seems to have a definite bias to the formal education system. And it also seems to recommend the initiation of totally new programs, while a more cost-effective approach might be to augment existing, high-quality programs. Specific mechanisms to coordinate and insure the cooperation of the many federal agencies with on-going environmental education programs such as the Forest Service and the Fish and Wildlife Service, should be added to the bill. We would also encourage language that fosters public/private environmental education partnerships and networks. An example of an effective partnership is Project Learning Tree, which is cosponsored by the American Forest Foundation and the Western Regional Environmental Education Council.

## 3. ALL LEVELS OF EDUCATION MUST BE REPRESENTED ON THE COUNCIL

We support the establishment of an Environmental Education Advisory Council. The Office of Environmental Education and the EPA will need the counsel of representatives from a variety of interest groups if they are to be effective in increasing the environmental literacy of our citizens. We encourage the EPA to ensure that primary, intermediate, and secondary education representatives are all included and that the university representatives include those responsible for training our future teachers as well as those responsible for updating the environmental knowledge and teaching skills of our in-service teachers.

## 4. EXISTING, SUCCESSFUL EE PROGRAMS SHOULD BE GIVEN FUNDING PREFERENCE

While we applaud the inclusion of an Environmental Education and Training Program, we believe a more effective approach would be to proportion a greater share of the funding to support currently underfunded programs which have proven successful and new programs in areas of assessed need. The bill now calls for 70%

of the funding dedicated to the activities of the Office and a single training program. Establishing a number of training programs located regionally would help in the development and implementation of more effective and appropriate programs and activities. For example, there are many institutions of higher learning, not-for-profit organizations, museums, and nature centers that are currently doing an outstanding job of training teachers and other professionals. These existing programs should be supported, not replaced.

### 5. USE EXISTING COMPUTER NETWORKS

The proposed bill calls for the maintenance of a library of information and dissemination of educational materials. NAEE recommends that the Office not reinvent the wheel but, instead support the Federally-sponsored ERIC (Educational Resources Information Center) network based at Ohio State University. ERIC has been disseminating environmental education information through computer and print mediums to all segments of society since 1968. ERIC consists of 16 separate clearinghouses that acquire, process, and disseminate information in specialized areas of education, such as the Clearinghouse for Science, Mathematics, and Environmental Education.

### 6. THE EE DEFINITION SHOULD BE BROADER

Given that environmental education is interdisciplinary in nature and includes instruction in language arts, social studies, mathematics, and science, we think the training program should support programs which fit a braoder definition than is currently addressed in the bill. We would recommend the goal of environmental education as formulated by the Tbilisi Declaration which is:

- To foster clear awareness of, and concern about, economic, social, political and ecological interdependence in urban and rural areas;

- To provide every person with opportunities to acquire the knowledge, values, attitudes, commitment and skills needed to protect and improve the environment;

- To create new patterns of behavior of individuals, groups and society as a whole towards the environment.

### 7. THE PROPOSED FUNDING LEVEL IS INADEQUATE

The proposed mechanism for funding the program makes good sense. We hope that there will be adequate revenue coming from the Environmental Education Trust Fund to finance this Act. The $15 million target figure for each fiscal year is far too modest considering the magnitude and importance of the tasks proposed. Inadequate funding will undermine the success of this program as it did to the original Environmental Education Act.

### 8. THE INTERNSHIP COMPONENT SHOULD BE MODIFIED

The internship component of the Act is valuable, but should be refocused. Instead of emphasizing college and university student internships, the Act should actively solicit participation from in-service teachers who need to increase their understanding of the environment so that they can translate that knowledge and experience into meaningful activities for their students. NAEE recommends that rather than develop a potentially duplicative general intern program, that the bill call for a smaller, fully funded program aimed at inservice and preservice teachers. The main constraint for the many existing intern programs offered by federal agencies, non-profit organizations, museums and nature centers is a lack of funds -- not the lack of a mechanism which is what is called for in the proposed legislation. We believe a modified approach would be a more effective use of limited dollars.

### 9. EXISTING AWARD MECHANISMS SHOULD BE UTILIZED

And finally, we support the inclusion of Environmental Education Awards but encourage the EPA to look at existing awards programs. Our organization and others also sponsor a series of environmental education recognition awards and the EPA awards should supplement not supplant these.

The North American Association for Environmental Education as one of the largest organizations of its type in the world is in a unique position to further assist in strengthening this important legislation. Among our membership are some of the world's leading environmental education scholars and practitioners. Our membership stands ready to assist you in developing and implementing the most effective environmental education legislation possible.

## LEGISLATIVE INFORMATION

# TESTIMONY
# OF THE
# NATIONAL EDUCATION ASSOCIATION

ON THE
ENVIRONMENTAL EDUCATION ACT
S. 1076

BEFORE THE
ENVIRONMENT AND PUBLIC WORKS COMMITTEE
OF THE
U.S. SENATE

PRESENTED BY
ROXANNE BRADSHAW
NEA SECRETARY-TREASURER

FEBRUARY 1, 1990

---

KEITH GEIGER, President
ROBERT CHASE, Vice President
ROXANNE E. BRADSHAW, Secretary-Treasurer

DON CAMERON, Executive Director

Mr. Chairman and Members of the Committee:

I am Roxanne Bradshaw, Secretary-Treasurer of the 2 million-member National Education Association, which represents professional and support employees in public elementary, secondary, and postsecondary schools throughout the nation. We appreciate the opportunity to comment on important legislation to promote better understanding of our fragile planet: the Environmental Education Act, S. 1076, sponsored by Chairman Burdick, Senator Chafee, and more than 20 other Senators.

The Environmental Education Act would establish an Office of Environmental Education within the Environmental Protection Agency (EPA); establish an Environmental Education Institute for teacher education; provide grants to school systems and colleges to develop environmental education curriculum; support college-level environmental internships in federal agencies; and provide national and regional awards to recognize excellence in environmental education.

NEA has long believed that America's priorities must include the protection of our environment. Toward that end, NEA actively supports efforts to develop and improve educational programs that will:

- Promote the concept of the interdependence of humanity and nature;
- Develop an awareness of the effects of past, present, and future population growth patterns on world civilization, human survival and the environment;

- Promote an understanding of the necessity to protect endangered, threatened, and rare species;
- Promote an understanding of the necessity to protect the earth's finite resources; and
- Promote the concept of pollution reduction.

NEA has been participating in the Alliance for Environmental Education, a coalition of some 40 environmental, educational, and public service organizations which share a commitment to disseminating information that will generate a better understanding of and respect for our biosphere.

The Alliance has been working with the Environmental Protection Agency to develop a National Network for Environmental Education. To date, four centers have been established: Murray (Kentucky) State University, Oklahoma State University, California State University at Bernadino, and California State University at Hayward.

For several years, NEA and EPA have worked together closely on providing public information regarding environmental hazards in the schools, and EPA has established a staff working group on these environmental hazards, including asbestos, radon, and lead in drinking water. These efforts have recently been expanded to address issues such as education on recycling and solid waste disposal, and safe drinking water.

We urge the Committee to include report language to ensure that the Office of Environmental Education cooperate with the other parts of EPA that are working with the education community. This will help avoid unnecessary duplication and allow EPA to coordinate its various efforts with education groups.

We applaud Senators Burdick and Chafee for recognizing the need to restore environmental education to its rightful place as a national priority. NEA opposed the consolidation of important categorical programs, including environmental education, into the Chapter 2 Block Grants through the Education Consolidation and Improvement Act of 1981, and our nation is just beginning to see the effects of a withdrawal of resources from national programs with specific purposes. Increasingly, the American people are recognizing the value of national priorities deemphasized through the education consolidation: environmental education, gifted and talented programs, resource centers for education professionals, and alcohol and drug abuse education. And yet, this proposed legislation is not merely a repeat of the past.

The proposed bill would establish an Office of Environmental Education within EPA's Office of External Affairs. As a general principle, NEA believes that federal education programs should be administered by the U.S. Department of Education. However, we recognize that -- given the expertise of EPA staff and that funding for these programs would come from fines paid to EPA -- it is appropriate to maintain these activities within EPA. However, this should by no means be considered a precedent for shifting programs out of the Department of Education or creating a variety of new programs that circumvent the Department of Education. We urge the EPA to work closely with the Department through the Environmental Education Advisory Council, of which the Secretary of Education is an ex officio member.

The Environmental Education Act properly recognizes the need to provide education and resource materials to the persons who will conduct the programs. The Environmental Education and Training Program would provide 30 percent of available funds -- up to $4.5 million each year -- to conduct inservice education programs for education professionals, including background on environmental sciences and theory, topical environmental issues, and developing environmental curriculum. In addition, this provision would establish a library of environmental education materials, information, and literature.

In addition, we support provisions to provide grants of up to $100,000 to local education agencies, colleges, and universities to develop environmental education materials and curricula. We are confident that local educators will be able to use such funds to develop effective environmental education programs that can widely shared with colleagues throughout the nation.

We strongly support the inclusion of a classroom teacher as a member of the environmental education advisory council. We're confident that the perspective of a professional teacher will be helpful in developing appropriate environmental education programs, whether or not they are located in the public schools.

Finally, we strongly support the development of an Environmental Education Trust Fund using a portion of the fines levied pursuant to violations of the Clean Water Act, the Clean Air Act, the Solid Waste Disposal Act, the Toxic Substances Control Act, the Federal Insecticide, Fungicide, and Rodenticide Act, and the Safe Drinking Water Act. At its 1989 annual meeting, the National Education Association specifically called for such a funding mechanism to defray the costs of environmental education grants.

The consequences for blatant disregard of the health of our planet are so great that we can truly say, unless we act today to instill in our nation's people a respect for the air, sea, and land, there will not be a tomorrow. The Environmental Education Act is an important step toward ensuring there is a tomorrow.

Thank you.

NATIONAL SCIENCE TEACHERS ASSOCIATION
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February 1, 1990

Honorable Quintin N. Burdick, Chairman
Committee on Environment and Public Works
United States Senate
Washington, DC 20510-6175

Dear Senator Burdick:

As chairman of the Environmental Education Task Force of the National Science Teachers Association, the largest professional association dedicated to the improvement of science education in the world, I am delighted to comment in support of your proposed National Environmental Education Act. NSTA is dedicated to the improvement of science education at all levels. The Association promotes the ideal of professional excellence to our members through conventions, award programs, journals, and publications. NSTA's concerned and involved members, assisted by a professional staff, reach students concerned with the environment everywhere from preschool through university level.

It is clear that a citizen of the United States can no longer function without an understanding and a commitment of the human to the environment. This commitment will act to maintain an environment fit for life and fit for living. The pressures of demand on limited resources, and the impact of hitherto acceptable behaviors on the utilization of resources requires an understanding of their application to science, technology and society. Hence, the more federal attention directed to environmental education in your proposed Act, the more appropriate it will be to the fundamental question: "What kind of a world do we want for our children?"

The Federal Government needs to more actively support and maintain a presence in environmental programs. Your act parallels comprehensive activities of NSTA in environmental education. For example, we provided for regional recognition for excellence in environmental education, have evolved criteria for environmental education program excellence, promulgated guidelines for exemplary environmental education programs and established a policy on the use of natural resources in the teaching of science. Currently our task force is addressing the need to come to consensus on what constitutes environmental literacy. NSTA applauds your efforts to establish an Office of Environmental Education, create an institute for teacher training, provide grants, support internships, and provide awards and recognition for exemplars in environmental education. Members of NSTA bring broad experience to these activities you propose and are willing to assist you with their implementation.

NSTA would like to be kept informed of progress on the National Environmental Education Act and would like to know how we might best serve science educators of the nation by working with you.

Respectfully,

John Padalino, Chairman
NSTA EE Task Force

Bill G. Aldridge, *Executive Director*

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An Affiliate of the American
Association for the
Advancement of Science

38th NSTA National Convention, Atlanta, Georgia, April 5-8, 1990

AN NSTA POSITION STATEMENT

# Environmental Education and the Use of Natural Resources in Science Teaching

It is increasingly evident that the quality of the biophysical and social environment is deteriorating at a rate that threatens human survival. Furthermore, an exponentially growing world population threatens even more rapid deterioration in the future. It must be recognized that science and technology will necessarily have an important role in solving these problems. It is vital, therefore, that science educators concern themselves with environmental problems. For these reasons, the National Science Teachers Association urges the following actions:

I. It is imperative that students at all levels develop an understanding of how humans relate to natural systems, and realize the importance of making wise individual and social decisions in respect to the use of natural resources and the maintenance of environmental quality.

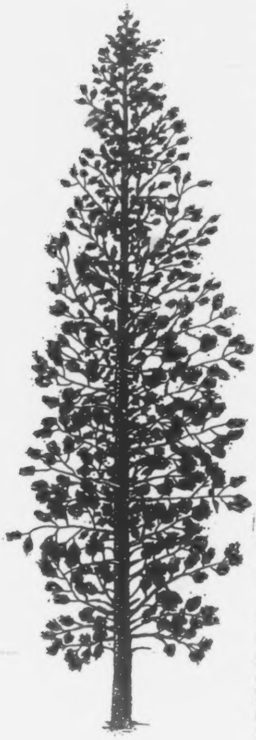
II. Science educators have a responsibility to help students establish a firm knowledge of fundamental scientific principles in order that they might better comprehend, explain, and predict the consequences of human actions on natural systems.

III. Firsthand interaction with terrestrial, aquatic, atmospheric, and human-designed components of the environment is considered both relevant and necessary for effective science teaching and learning. With such an experiential base, science educators can help students to develop the kind of reasoned thinking that will result in responsible decision-making regarding human/ecosystem interaction.

IV. NSTA supports activities that pro mote increased awareness and responsible educational use of terrestrial, aquatic, atmospheric, and human-designed components of the environment.

*—Adopted by the NSTA Board of Directors, April 1985.*

## .........PRESIDENT'S MESSAGE



Environmental literacy is good and necessary and yet we do not have enough of it among our young people. Consensus is that schools, who should be providing environmental literacy, are failing to provide an acceptable level of it to most young people. As educators, we must seek to better understand environmental literacy , first its roots and definition, then its consequences and future. Our schools need to teach less, better, according to the American Society of Testing and Materials (ASTM) Environmental Literacy subcommittee.

A question to which the community of educators for the environment must respond is: What knowledge, skills, habits of mind, and behaviors associated with a sanative environment should all Americans have by the time they leave school? As chairman of the ASTM subcommittee on environmental literacy, I am directing an initiative of sustained activity that may lead to critically needed reform of education for the environment. This is in response to a request from several sources to explore the establishment of standard development activities in environmental education which include: the Alliance for Environmental Education, the US Environmental Protection Agency, and the Federal Interagency Committee on Education (FICE) subcommittee on environmental education. It has been suggested that coming to a consensus on what environmental literacy is and guidelines for achieving environmental literacy would be beneficial to implementing programs for educating people about the environment across the nation.

An environmentally literate citizenry is important to our nation yet colleagues in the field fail to describe in a way that enables measurement and what it means to be environmentally literate. Some have suggested that environmental literacy may simply be the five statements from a 1978 FICE report, Toward an Action Plan: A Report on the Tbilsi Conference on Environmental Education: "An environmentally literate person has 1) an awareness and sensitivity to the total environment, 2) a variety of experience in, and a basic understanding of, the environment and associated problems, 3) acquired a set of values and feelings of concern for the environment, and the motivation for actively participating in environmental improvement and protection, 4) acquired the skills for identifying and solving environmental problems and 5) had the opportunities to be actively involved at all levels in working toward resolution of environmental problems." Phase one of this ASTM initiative will focus on the substance on environmental literacy. The purpose is to establish a conceptual base for reform by spelling out the knowledge, skills, and attitudes all students should acquire as well as behaviors exhibited as a consequence of their total expectations for an environmentally literate populace.

Our task will be to take a look at conceptual barriersto achieving consensus on what constitutes environmental literacy and its implications for schools, curricula, and the inability to clearly describe what is expected from schools. We will ask, what does it mean to be environmentally literate? How would one describe in a variety of contexts, the behavior of an environmentally literate person as well as the knowledge, skills, and dispositions they possess. Most critically, what are the educational experiences that are assumed to produce an environmentally literate person. Barriers to consensus, which have obscure issues, are intermingling purposes, means, and outcomes. Confusion among educational purpose, course content, instructional methods, and alleged changes in students represent some of the barriers to achieving consensus on descriptions of environmental literacy. The diversity and complexity of behavior, knowledge, intellectual skills, and habits of mind considered to characterize the environmentally literate person also serves as a barrier to our achieving consensus.

A basic purpose of our work is to characterize environmental literacy, part of which is education for a sanative environment. The proposed core of our subcommittee's work is a set of recommendations by a distinguished group represented in the form of basic learning goals for all American children. Our group stated, "we do more with less, better" hence, schools need not be asked to teach more, but teach less and better about a common core of learning limited to ideas and skills having the greatest environmental and educational significance. Participation in the ASTM environmental education initiative is open to all who are interested. Contact: ASTM, 1916 Race St., Philadelphia, PA 19103-1187.

John Padalino

# STATEMENT OF F. JOHN TURNER, DIRECTOR, U.S. FISH AND WILDLIFE SERVICE, DEPARTMENT OF THE INTERIOR, FOR THE RECORD OF THE HEARING OF THE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS, UNITED STATES SENATE, ON S. 1076, THE NATIONAL ENVIRONMENTAL EDUCATION ACT

February 1, 1990

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Mr. Chairman, the Committee is to be commended for taking the initiative on environmental education, and I would like to thank you for the opportunity to comment on this legislation.

The Department of the Interior has been engaged in environmental education for most of its existence. Education is one of four special initiatives the Secretary is pursuing in the Administration, along with initiatives on volunteerism, the war on drugs, and women, minorities and persons with disabilities.

In addition, the Department of the Interior intends to pursue its prominent role in the international community. The Department has been pursuing an active international environmental education program for many years, particularly through the National Park Service and the Fish and Wildlife Service.

The Department's FY 1990 budget request will fund $98 million of non-Indian educational activities. This represents an increase of $7 million over FY 1990. The activities include interpretive programs of the National Park Service and the U.S. Fish and Wildlife Service as well as earth sciences, engineering, and natural resource programs of all of the Department's bureaus.

As a bureau within the Department of the Interior, the Fish and Wildlife Service (Service) is heavily involved in environmental education. Visitors to many of our national wildlife refuges and national fish hatcheries have the opportunity to learn about the natural world, environmental problems, and management activities needed to preserve and enhance the environment. In addition, the Service produces a significant number of educational publications and has a variety of programs with environmental education components such as aquatic education efforts carried out in cooperation with the States through our Federal Aid program.

As can be seen from the Secretary's FY 1991 budget, the Department considers environmental education to be an important priority and believes that, over the next several years, the Department will build on present programs while developing new and innovative ways to educate the public about wildlife and conservation needs. In implementing the Secretary's initiative, I have charged the Service with the responsibility of ensuring that existing programs are as effective and efficient as possible while at the same time seeking new avenues for expanding the environmental education activities of the Service.

Bearing in mind the fiscal realities under which we must operate, I feel that S. 1076 is a realistic way of addressing important needs. I fully support the concept of the bill and the intent of the legislation. The bill's training programs, awards, and internships all can have a positive impact on environmental education in this country.

However, as Director of a Federal land management agency, my view of environmental education may differ slightly from that of those who do not have such responsibilities, and I would like to offer the following comments on steps that might be taken to strengthen the bill from our perspective.

Although it is reasonable for the Environmental Protection Agency (EPA) to participate, other Federal agencies, particularly the land management agencies, have major contributions to make in environmental education. The Fish and Wildlife Service would like to cooperate fully with all appropriate agencies on implementation, but the maximum synergy can be effected if the role of Federal agencies is more specifically referenced in whatever bill may move forward. In particular, a representative from each Federal land management agency should be involved in providing input to policy decisions. Furthermore, we would note that the National Science Foundation has a major Congressionally mandated role in science and mathematics education. Any additional educational activities at the Federal level should seek to complement, not duplicate this effort.

Section 5, concerning environmental education and training programs, seems potentially duplicative and in direct opposition to the trend in education to target efforts at the State and local level. Rather than set up a large new organization for training, the program should be flexible enough to foster training to the extent it does not duplicate existing programs. That way, more good environmental education programs could be supported.

Currently, training programs are run by Project Learning Tree, The National Issues Forum, Project Wild, the North American

Association for Environmental Education, many universities, and others. Working to ensure that a network is established to promote coordination and cooperation among government agencies, universities, and non-government organizations involved in training would be a big step toward accomplishing the objective at a much lower cost.

In general, the bill seems to target the formal classroom. Although non-government organizations are mentioned, they seem relegated, perhaps inadvertently, to a lesser position. For example, section 9, paragraph (f)(1), provides for a report assessing the extent of environmental education in the Nation's schools, but does not ask for education efforts conducted by the non-government sector -- thus leaving out a major group of players on the environmental education scene. We would note that the National Park Service has done quite extensive work with classroom education.

Throughout the country, Fish and Wildlife Service employees work with staff from nature centers, museums, and small voluntary organizations to put on training and other environmental education activities. I am sure that is also the case for other Federal agencies, and the bill should be strengthened to explicitly support cooperation and coordination with the other governmental and non-governmental organizations involved in environmental education.

The intern possibility provides an opportunity for the Federal government to make needed improvements in an area of particular interest to me. I have long been concerned by the apparent under-representation of minorities in resource management agencies. I am hopeful that the intern program envisioned under the bill will provide another opportunity for minorities to be included in the field of natural resource management.

Thank you again, Mr. Chairman, for the opportunity to share the views of the Department of the Interior, and particularly the U.S. Fish and Wildlife Service, on this important issue. We look forward to strengthened environmental education activities complementing, not duplicating the extensive ongoing roles of the Department and other Federal agencies. Please let me know if we can be of any further assistance in your deliberations.

# STATEMENT OF
# THE AMERICAN GAS ASSOCIATION
# BEFORE THE
# COMMITTEE ON
# ENVIRONMENT AND PUBLIC WORKS
# UNITED STATES SENATE
# ON
# S. 1076
# THE NATIONAL ENVIRONMENTAL EDUCATION ACT

February 26, 1990

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## Introduction

The American Gas Association is a national trade association comprised of some 250 natural gas distribution and transmission companies throughout the United States. Collectively, our members account for approximately 85 percent of all end-use sales and serve over 166 million consumers. As an organization deeply committed to helping our nation improve the quality of its environment, we strongly support S. 1076, the National Environmental Education Act and appreciate the leadership role Chairman Burdick has taken on this issue.

Environmental awareness is brought about through public education. This goal is best served if the public has access to a free and truly diverse marketplace of ideas. Government should not be the sole source of information. Nor should industry or private environmental interest groups. Rather, these and other groups should work together to provide accurate insights and perspectives on the environment.

We commend this committee for holding hearings on this new environmental education initiative. The timeliness of this hearing reinforces the fact that public concern for the environment and the health effects of pollution has never been greater. While consumer response to pollution concerns is causing more and more businesses to reassess their attitudes towards the environment, it is the government, through initiatives such as S. 1076, that will be the catalyst to establishing a national environmental ethic.

As to the specific provisions of the bill, A.G.A. concurs in the testimony presented by Steven Kussman, Chairman of the Alliance for Environmental Education on February 1, 1990. The following is a summary of A.G.A. involvement in educational and partnership initiatives.

## A.G.A. EDUCATIONAL INITIATIVES

A.G.A. is involved in a number of educational programs, that range from sponsorship of the Emmy-winning "Nature," the most popular program on the public broadcasting system, to specific student-oriented educational programs.

In cooperation with local gas utilities, A.G.A. distributes nearly one million pieces of instructional material each year to teachers across the country. The materials range from packets of experiments on the properties of gas and heat energy to activity guides on rare and endangered species. Another new program helps students understand the scientific process as it explores two different theories on the origins of natural gas.

A.G.A. also makes available to teachers, free of charge for one year, the publication, "The Natural Resource," which focuses on the role of natural gas and the environment. To promote understanding of our disappearing plants and animals, A.G.A. and the Nature Conservancy published a kit entitled "Rare and Endangered Species", which is also available free of charge to teachers.

The Association is very active in the Alliance for Environmental Education, an affiliation of more than 40 business, labor, health, education and environmental organizations that share a commitment to furthering environmental education. A.G.A. is providing financial and staff support for the organization's primary project -- the establishment of a National Network for Environmental Education. The Network, which also is being supported by the EPA, will provide in-service and pre-service teacher training, program adaptation and development, research on educational and environmental topics, and community outreach. The first centers in the Network were designated in May, 1989 and many of our member companies have taken an active interest in the project.

On the elementary school level, A.G.A. cosponsors the Science Teaching Achievement Awards (STAR) with the National Science Teachers Association. At the college level, A.G.A. has awarded scholarships, since 1970, to undergraduate students for study in natural gas-related fields. In mid-July last year, A.G.A. awarded $1,000 scholarships to 12 students, with half of the award as an outright grant and the other half as an interest-free loan. Eight of the current recipients are chemical and engineering majors, three are mechanical engineering majors and one is a petroleum engineering major.

A.G.A. is also involved with a new initiative by the American Society of Testing and Materials to develop standard definitions and guidelines for environmental education.

## **A.G.A. PARTNERSHIP INITIATIVES**

The exchange of information is imperative to having an informed public. Public concern about the environment is growing. Individuals recognize that they must change the way they live, and they are looking for guidance. Clear and accurate information must be presented so that the public can make informed choices. In this regard, A.G.A., with member company support, has been active in the National Energy Foundation and the National Energy Education and Development Project. A.G.A.'s president, George H. Lawrence, serves as vice chairman of the National Energy Foundation, which distributes balanced educational materials on a variety of energy and environmental topics. The National Energy Education Development Project was formed in 1980 to provide a network for the disemination of national energy education materials through state and local educational institutions.

Industry partnerships with unlikely groups have become commonplace when the subject matter is the environment. A.G.A. participates in regular dialogue meetings that involve gas industry representatives, environmentalists, and government policy leaders. Originally sponsored by the World Resource Institute, EPA recently took over sponsorship of these meetings.

In 1988, A.G.A. cosponsored a conference with the Sierra Club and the Texas General Land Office entitled "Natural Gas and Clean Air - An Alliance for America's Future." This conference was well-attended by congressional staffers, environmentalists and industry representatives. A.G.A. has also cosponsored or provided financial support for meetings held by the Climate Institute and Robert Redford's Institute for Resource Management.

A.G.A. is also involved in carrying our environmental message to government officials, the media and international environmental leaders. A.G.A. is a member of the organizing Committee for Earth Tech, an environmental technology fair and international policy forum slated for April 4 - 8 in Washington. Earth Tech is being sponsored by the Environmental and Energy Study Institute, in cooperation with Senators John Heinz and Al Gore and the Congressional Environmental and Energy Study Conference.

## CONCLUSION

Our nation needs strong federal participation and leadership in environmental education. Over the past ten years other interest groups have taken the lead but the private sector cannot do it alone. It is time for the government to jump back in and play a critical role. We believe S. 1076, by establishing an Office of Environmental Education, provides a good start in accomplishing this. The bill's recognition of the importance of technology transfer, its support of federal coordination, and the funding mechanism will greatly further environmental education.

A.G.A. and the gas industry are deeply committed to furthering economic and environmental quality goals through education and training. With all interested parties working together --industry, environmentalists, government officials and educators -- there will be an informed public to safeguard our environment in the future. We pledge our support to this committee in passing the National Environmental Education Act.

THE AMERICAN INSTITUTE OF ARCHITECT

Sylvester Damianos, FAIA
President

February 15, 1990

The Honorable Quentin N. Burdick
U.S. Senate
Washington, DC 20510

Dear Senator Burdick:

Thank you for the opportunity to provide testimony on S.1076, The National Environmental Education Act.

As President of The American Institute of Architects, the professional association representing the nation's architects, I would like to bring to your attention a concern we have about environmental education legislation currently under consideration in The Senate Committee on Environment and Public Works. Specifically, the AIA is concerned that S.1076 The National Environmental Education Act, is incomplete.

Background

S.1076 would renew the Federal commitment to environmental education and training. The legislation is modeled after the original national Environmental Education Act, which was enacted in the early 1970's but repealed in 1981. The bill would establish an Office of Environmental Education, provide for training of teachers and others in environmental education, provide small grants to school systems and colleges, support college level interns in Federal agencies, and provide for awards to recognize excellence in environmental education. Funds for the program would be provided by a portion of penalties paid for violations of environmental protection laws.

The Issue

The legislation proposes "to increase public understanding of the natural environment" and to advance and develop environmental education and training. All references to the environment are narrowly limited to the "natural environment".

Any definition of the environment must include all aspects of it. The problems of pollution and resource allocation cannot be separated from transportation, technology, infrastructure, and urban planning. Environmental education is the integrating process which deals with the interrelationship between natural and built surroundings. Because the "National Environmental Education Act" will serve as a policy document for educators throughout the country, it should contain a definition that is both comprehensive and offers meaningful guidance. The title of the committee of jurisdiction, the Environment and Public Works Committee, recognizes the linkage between natural and built environments, S.1076 should do the same.

The Solution

The AIA proposes that the Committee take one of two actions:

Option 1:

Include a definition of environmental education that addresses the total environment. The original act of 1970 defined environmental education as a process dealing with the relationship of natural and built surroundings, and included the relation of energy, population, pollution, resource allocation and depletion, conservation, transportation, technology, economic impact, and urban and rural planning to the total human environment.

Option 2:

Eliminate all references in the Act that limit the environment to only the "natural" environment. This would expand the definition of the environment to include all aspects of it.

We appreciate your consideration of our views on this matter.

Sincerely,

Sylvester Damianos

Sylvester Damianos, FAIA
President

Statement for the Record
of the
American Institute of Biological Sciences
on
S. 1076
The National Environmental Education Act

Prepared for the
Senate Environment Committee

February 1, 1990

The American Institute of Biological Sciences (AIBS) appreciates the opportunity to comment on S. 1076 as introduced by Senator Quentin Burdick. AIBS is an organization composed of 41 member societies and research laboratories representing some 70,000 biologists. The Institute was established in 1947 by the National Academy of Sciences as a non-profit organization to "further the advancement of the biological sciences and their application to human welfare, and to foster and encourage research and education in the biological, medical, environmental, and agricultural sciences."

AIBS strongly supports the Environmental Education Act. Knowledge and understanding are essential underpinnings for developing policies to deal successfully with the multiple and diverse problems facing the planet. We support programs that will promote an understanding of the natural world and human impact on it, promote an understanding of the necessity to preserve biological diversity, the world's natural resources, and air and water quality.

Public concerns for the environment is at an all-time high, but public understanding of the issues is often woefully inadequate. The response to environmental issues is often out of proportion to the magnitude of the risk.

Interdisciplinary education must be based on a strong science component. Effective environmental education must rest on a solid foundation in the basic sciences including biology, chemistry and earth sciences, supplemented by the social sciences and humanities. We would like to see the Office of Environmental Education that will be established in the EPA cooperate with

NSF's Directorate of Science and Engineering Education, and we would like to see it support projects in museums, zoos, and aquaria, etc. as well as in formal school settings.

We think that inquiry-based projects and hands-on experiences in the application of knowledge to practical problems is the most effective approach to "environmental literacy."

For the K-12 education community, many efforts are already underway in developing curricular materials, and we support continuation and expansion of these efforts. There is an urgent need for development of stronger programs in Environmental Science and Environmental Studies at the undergraduate college level. Such interdisciplinary programs cut across the traditional departmental structure in universities and must often compete with traditional departments for faculty, students and resources. We support the plan for internships for college students. It is students in such programs who would become the interns. Yet other parts of their education are in great need of strengthening, since the interdisciplinary programs do not often receive adequate resources from the central administration. It is our hope that this bill will send a clear message to colleges and universities to provide adequate resources to these interdisciplinary Environmental Science/Studies programs.

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Statement of

ASSOCIATION OF SCIENCE-TECHNOLOGY CENTERS

To the U.S. Senate

COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

on S. 1076, the

NATIONAL ENVIRONMENTAL EDUCATION ACT

February, 1990

AN ORGANIZATION OF MUSEUMS DEDICATED TO FURTHERING PUBLIC UNDERSTANDING AND APPRECIATION OF SCIENCE AND TECHNOLOGY

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Like people all over the planet, Americans are deeply anxious about the state of the global environment. In a recent Harris poll, 81 percent of the Americans surveyed said that they expect the environment to be worse in 50 years. Virtually everyone questioned -- 97 percent -- thinks the United States should do more "to protect the environment and curb pollution."

Through intriguing, hands-on experiences in science, science centers and museums across the country help students, teachers, families, and communities understand both global and local environmental problems. Interactive exhibits provide balanced, accurate information and interpret scientific evidence on complex environmental issues. Innovative educational programs develop technical and analytical skills and foster positive, problem solving abilities to tackle serious existing and future environmental problems.

Because science center educators and scientists have long-established ties to their local schools, teachers turn to museums for interactive science activities and resources to use in the classroom. As many teachers are neither trained to teach--nor comfortable with--science based subjects, they find the practical inservice training offered at their "user-friendly" science center to be especially helpful.

Therefore, the Association of Science-Technology Centers (ASTC)* commends the Committee for reasserting the federal role--the federal responsibility--to strengthening environmental education.

Vigorous federal leadership could capitalize on existing high quality resources, stimulate extensive dissemination nationwide, and expand effective teacher/educator training initiatives.

We do urge clarifying language that more explicitly recognizes and supports successful, innovative educational resources, curricula, and activity-based programs originating in nonprofit, informal institutions like science centers and museums.

---

*The Association of Science-Technology Centers (ASTC) is a nonprofit organization of 325 science centers, museums, and affiliated institutions dedicated to making science and technology intriguing for people of all ages and backgrounds. Science centers and museums feature hands-on exhibits, science activities, teacher training workshops, and programs that support families and community groups in motivating young people to study science. ASTC serves as a resource to the field through its traveling exhibition service, publications, and conferences.

AN ORGANIZATION OF MUSEUMS DEDICATED TO FURTHERING PUBLIC UNDERSTANDING AND APPRECIATION OF SCIENCE AND TECHNOLOGY

**There are many creative, highly effective programs--pockets of excellence--available on a myriad of environmental issues such as air and water quality, acid rain, climate change, hazardous materials and waste management. Make room for these excellent programs to be more widely implemented.**

**The heart of S. 1076 is Section 6, the Environmental Education Grants. This is the real project support which has the potential to spread the most effective environmental education into communities and schools throughout the nation. However, a breakdown of the proposed allocation reveals that only 33 - 34 grants of $100,000 might be available.**

Direct a stronger federal role here, and the Act would fuel significant progress in environmental education through national coordination, cost-effective replication, and broad dissemination of high quality programs.

The bill's other essential initiative is to increase federal support for training a range of educational professionals. At present, successful model programs enable educators to gain competence in environmental sciences, conservation of natural resources, pollution and waste management, and associated economic implications (considerations ?? factors??).

A number of these most innovative environmental education projects are developed by nonprofit, private sector institutions for community-wide audiences as well as for schools. At science centers, close collaboration with schools means that the teacher training is teacher inspired, tested, and approved. The classroom activities stimulate student inquiry and are manageable.

In practice, the Environmental Education Institute concept, as outlined in Section 5, would likely be insular and too centralized for greatest impact. Again, we urge making room for the range of diverse institutions capable of delivering excellent services.

Public/private partnerships and a well-balanced federal program in environmental education can best be fostered by open solicitations for competitive grants which are recommended for funding through peer review panels and administered by EPA.

Clearly, the National Environmental Education Act is timely: it establishes federal action that is both greatly needed and is responsive to public interest.

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February 16, 1990

The Honorable Quentin N. Burdick
Chairman
Committee on Environment and Public Works
United States Senate
Washington, DC 20510-6175

Dear Senator Burdick,

I am writing to you today on behalf of Senate Bill 1076. I applaud your advocacy for environmental education.

The Chesapeake Bay Foundation believes that the best long term investment in the future of our environment is education. This bill has provisions for many of the necessary conditions for a successful environmental education program. Some of these include: an office to oversee the implementation of environmental programs; teacher training as a priority to adequately prepare teachers for what may be new avenues of study; grants for schools and other educational institutions to provide materials, field trips, and special projects for students; a funding source to support these programs.

It has been our experience over the past 17 years of providing field trips for schools that environmental education has been a neglected area of students' education. With the growing concern over environmental degradation, it is appropriate that the United States Government fund programs to educate its citizens.

Environmental education is a multi-disciplinary program and should be incorporated into political science, history, sociology, economics, art, language, and science curricula. Since environmental education is such an all-encompassing project, it is appropriate that all facets of education are accounted for. Teacher training, internships, and project funding are the major areas covered by this legislation. It should be better defined exactly what types of training, internships, and projects would qualify for funding.

Establishing an Office of Environmental Education and an Environmental Advisory Council are effective components of this legislation. With their various

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duties of oversight and recommendation, these two bodies have the potential to insure that a coordinated environmental education program takes place. A fair portion of the funding for this program (40%) will be spent on these administrative positions. Less should be spent on administration and more should be put toward programs.

Although CBF does support this legislation, we hope you consider two amendments. This first has to do with EPA being the sole body responsible for oversight of this program. A cooperative arrangement between EPA and the Department of Education would be preferable. Since EPA is not an educational institution, it is desirable to have educational experts also involved in the process. The second, and greatest, reservation about this legislation concerns its provisions for funding. $15 million is a pittance for a national educational program. Furthermore, having reviewed the past record of Federal enforcement actions, we find that only $13 million would be available in an average year for this program. Programs in general are funded at the level of their relative merit to society. Environmental education should be at the top of the list since its implications are so far-reaching. Although SB 1076 has a greater allowance for funding than its counterpart of the 1970s, I would venture to guess that it actually is not receiving more money, taking inflation into account.

CBF's interest in environmental education lies not only in educating the students of our watershed about the Chesapeake Bay, but in supporting nationwide efforts to teach young people about our collective environment. I hope that the government will see fit to provide quality educational opportunities for students and teachers in our country.

With best regards, I am,

Sincerely,

William C. Baker
President

WCB/ew

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## FACT SHEET ABOUT CBF'S EDUCATION PROGRAM

- Since 1972, CBF has provided field trips on the Chesapeake Bay for approximately 250,000 students and teachers from Maryland, Virginia, and Pennsylvania.
- CBF currently has 16 education programs, from York County, Pennsylvania to Norfolk, Virginia.
- Each field trip consists of a day or more in a canoe, on a workboat, on a sailing skipjack, on a farm, or on an island, exploring the unique features, as well as the environmental problems, of the area.
- The gear used on field trips includes scientific equipment, such as otter trawls, plankton, seine, fyke and cast nets and water testing equipment designed to test pH, chlorine, nitrates, phosphates, dissolved oxygen, salinity, and turbidity. In addition, we use watermen's gear, including crab pots, crab scrapes, and oyster dredges.
- All field trips are lead by experienced field instructors who have a variety of backgrounds. Currently, there are 45 people on staff conducting field trips.
- Safety is CBF's number one priority on field trips. All instructors are certified by the Wilderness Medical Associates to act as first responders in a wilderness setting.

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## Written Testimony Submitted to The Subcommittee on Environmental Protection of the Senate Committee on Environment and Public Works

**by Patty Finch, Executive Director,
The National Association for Humane and
Environmental Education, a division of
The Humane Society of the United States
February 16, 1990**

Mr. Chairman and members of the Committee, my name is Patty Finch and I appreciate the opportunity to submit the following testimony for the record as the Executive Director of the National Association for Humane and Environmental Education (NAHEE). NAHEE is an organization devoted to creating elementary and secondary education programs which promote respect for life and the environment -- humane education. It is an affiliate of The Humane Society of the United States (HSUS), the world's largest animal protection organization. This testimony is submitted on behalf of NAHEE and the HSUS.

Let me begin by commending Chairman Burdick and the Subcommittee on Environmental Protection for S. 1076 which responds to the need for state and local programs in environmental education.

To state that there is great need for the Federal government to renew its role in assisting and supporting existing environmental education programs and efforts is to make a gross understatement. Harvard professor E.O. Wilson suggested in his book "Biophilia" that, barring nuclear war, the worst thing that will probably happen on Earth is the catastrophic loss of genetic and species diversity by the destruction of natural habitats. In his view, this process -- already well underway -- is "the folly our descendants are least likely to forgive us."

Indeed, the loss of natural diversity seems destined to be nothing short of catastrophic. As of November 1989, U.S. Fish & Wildlife Service Records show that about 800 native species of animals and plants are in danger of extinction, and that some 120 others appear to have already vanished in recent years. At least 1,600 additional species could become officially listed in the near future, pending "more conclusive" information about their status. Of our vertebrates, The HSUS scientific staff estimates that 4-10% of all full species are in jeopardy in the U.S., based on current endangered species data and on the number of known species. In the case of plants, the Center for Plant Conservation considers approximately 3,000 species, subspecies, and varieties, some 10% of the total known, to be at risk of extinction. Meanwhile, thousands of "non-threatened" species decline in abundance.

The endangerment of species is symptomatic of a much broader crisis in nature. Even major ecosystem types, such as wetlands, tall grass prairie and old growth forest are being jeopardized or almost gone. The recent addition of nine Florida plants to the federal list of endangered species exemplifies the problem; rapid agricultural and suburban development continues to destroy the ecosystem of central Florida upon which these plants depend.

Globally, the current destruction of life is almost beyond belief. Extinctions are running as high as 5,000 to 10,000 species a year, largely as a result of deforestation in the species-rich tropics. The current rate of extinction worldwide may well be 10,000 times greater than what would be expected under natural conditions. While species become extinct en mass, the birth of new ones is seriously compromised, as habitats and thus gene pools become too small to permit speciation of many of the world's larger plants and animals.

Much is known about the value of biological diversity as a source of pharmaceuticals, fibers, petroleum substitutes, new or genetically improved crops, domestic animals, pest control agents, and other resources; and about the role of varied natural ecosystems in water purification, flood control, fisheries production, carbon dioxide absorption, and other ecological services. Much is also known about the importance of diverse natural environments to human psychological, spiritual, and cultural well-being. Yet we find ourselves as a society grossly ill-equipped to curtail the continuing destruction of nature.

There is always the temptation to argue that the solution to any problem is "more education". However, in this case, such arguments appear entirely justified. How many students can accurately name even a handful of U.S. endangered species and ecosystems, and describe the factors that threaten them? How suggestive is a recent survey (ERIC Clearinghouse 1987) showing that environmental education currently receives only cursory attention in our elementary and secondary schools?

The institutional approach proposed in S. 1076 which includes the establishment of an Office of Environmental Education within the Environmental Protection Agency and the establishment of an Environmental Education Advisory Council, appear to be appropriate measures to help assure the effective implementation of the proposed program, but, as important as these meetings are, they are not nearly adequate. In addition, to the understanding and awareness focus spelled out on page 3, section 7 of S. 1076, the proposed program should add to its overall goal the two-fold aim of **preventing** environmental waste and destruction and arriving at **solutions** to environmental problems. In addition, the coordination of the proposed program with related programs should be spelled out in more detail.

The proposed environmental awards are appropriate, but inadequate. Any environmental concern in this proposal, whether it involves flora, fauna, geographical or other considerations, involves man, man's responsibilities, and reverence for life. When one speaks of the environment, one includes all living things in that environment. An award named after Albert Schweitzer, the originator of the concept of "reverence for life" should be included. His omission from the individuals commemorated by awards is a glaring one. Consideration should be given to presenting an Albert Schweitzer award to an individual student or group of students who has acted in a significant way to demonstrate responsible action and respect for the natural world. Today's students are tomorrow's citizens; all of the efforts by all of the adults involved in the proposal will be for naught if the students they are trying to educate are not affected in a constructive, lifelong way. Certainly, student initiatives should be recognized and rewarded.

Lastly, and most importantly, in view of your efforts to address key aspects of environmental education, we would like to suggest inclusion in the bill of the concept of respect for living creatures as a means of strengthening its efforts to instill in children a sense of respect and responsibility for the environment.

Humane education is far more than the generally-held belief that it is simply the teaching of kindness to animals. The concept involves a process through which children learn the inter-relationships and inter-dependencies existing in the natural world and how their individual actions affect these relationships. This help instills in children a sense of compassion, justice and respect for all living creatures; the understanding and knowledge necessary to implement these principles; and an awareness of their responsibilities as citizens of the world. While these goals are implied throughout this vital bill, some amplification is needed.

Implicit in both humane education and environmental education is the need for responsible action and respect for the natural world. Indeed, our humane educational materials stress this. For instance, any study of ocean pollution includes the effects of pollution on creatures living in or near the oceans -- seals, dolphins, whales, birds, fish, reptiles, and other animals. Similarly, any study of the destruction of rain forests embraces an understanding of the impact of such habitat loss on a variety of species. Soil erosion, climatic changes, damage to ecosystems, and other concerns are presented in light of their effect on the living world and, hence, are understood by children.

I emphasize the point of understanding. In today's world, where environmental mishaps make almost daily headlines, children can easily feel a sense of helplessness over the enormity of these disasters. But there is a subject which children understand and which can act as a bridge to comprehending the environment; that is, animals. The notion of "environment" becomes real to children through their affinity for the creatures which inhabit the forests, oceans, mountains and deserts. Kindness and respect for animals naturally translates into care for these creatures' homes, which in the broader sense is our environment.

Through their interest in and affinity with animals, children begin to grasp the natural world in its larger context and the impact of each individual's actions on the environment. However, the need to foster interest and affinity for animals does not end with childhood. Education programs designed for college students and adults should also include the concept of respect for living creatures. It is crucial to reach college and university students, in particular, as they make career choices. Environmental education should occur throughout life, but the bill's greatest impact for the near future would be to help imbue in young professionals a respectful understanding of the interdependence of all life, for theses are the people who will be making decisions in their jobs which will affect our environment.

In conclusion, NAHEE and the HSUS respectfully urge the inclusion in S. 1076 language which reflects respect for all living creatures as a necessary approach to the study of the environment. This will further underscore the proposed bill's vital goal: To instill in citizens of all ages respect for nature and a sense of responsibility toward the natural world.

Again, we appreciate the Subcommittee's willingness to let us submit our views for the record.

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*The responsible voice for Maine's environment and natural resources.*
Established 1843

February 15, 1990

Senator Quentin N. Burdick
United States Senate
Committee on Environment and Public Works
Washington, DC 20510-6175

Re: S.1076

Dear Senator Burdick:

Maine Audubon Society is a state-wide non-profit agency with an environmental mission supported by some 10,000 members. It is not affiliated with National Audubon Society, but works independently on environmental issues of concern to the residents of Maine. Its mission includes environmental education, advocacy, and research and policy analysis.

We write in support of S.1076, A Bill to increase public understanding of the natural environment and to advance and develop environmental education and training. Environmental education is needed to develop an aware citizenry with the knowledge, attitudes, commitment and skills to work individually and together to cure current environmental ills and prevent new ones.

There are many good reasons for environmental education at all educational levels:

* to gain a fundamental respect and appreciation of the natural world around us;

* to help people become more informed, productive citizens of the modern world;

* to foresee and avoid environmental disasters, especially irreversible ones;

* to learn from the experiences of others, avoid their mistakes and replicate their successes;

* to make the best use of our natural resources, and to manage them sustainably;

* to prevent panic and exaggeration of environmental issues through public understanding that respects their true urgency;

* to insure that people can feel enriched by, secure in, connected to their environment in their economic, emotional, and spiritual lives.

During 1989 Maine Audubon Society conducted an environmental education needs survey in Maine with the support of L.L. Bean, a Maine corporation. Our results showed clear evidence of the need for public commitment and leadership in environmental education. The survey found that:

* Environmental education in Maine is haphazard and meets consumer/learner needs in random fashion;

* Equitable distribution of resources and programs across the state is lacking;

* Educators recognize a need for environmental education, with a 99% positive response to the question;

* Schools need guidance on developing environmental curricula and integrating it into existing subjects;

* Resources for environmental education are not adequately available to teachers or the general public;

* Obstacles to effective environmental education include under-prepared teachers, need for access to resources, and lack of time for planning and preparation.

A report summary is attached.

Here is a challenge, not for Maine Audubon Society alone, but for all agencies and individuals with a concern for the future quality of life on Earth and the role of education in insuring its preservation. We give high priority to acting on these findings and look to our political leaders for affirmation and support in doing so. Both Senator George Mitchell and Representatives Olympia Snowe and Joseph Brennan of Maine responded positively to the survey report, pledging support for environmental education initiatives.

There is a need for the Federal government to renew its role in promoting environmental education efforts. Beyond welcome financial assistance, the recognition of the importance of environmental education at the Federal level does much to validate efforts at the state and local levels.

The institutional approach as proposed in the Bill would provide an appropriate structure for the management and coordination of programs. Whether it would be adequate to meet the diverse needs of a comprehensive environmental education program is less clear. The particular needs of different segments of the general population are not well identified. Attention is given to the training of teachers and of specialists, but recognition of the non-specialists, that is the general population and also those groups whose work has an impact on environmental quality, is lacking.

It follows that the mix of teacher training, project funding, internships, and awards may need to include explicit targeting of programs to particular audiences to develop general basic understanding of humanity's interdependence with planetary life. The mix may need to include environmental internships for general students, not just college level students. If environmental education is to have a significant role in addressing our environmental problems, it is more essential to involve the average person than the specialists.

To summarize, Maine Audubon Society applauds the work of the Senate on legislation to renew the Federal government's commitment to environmental education. Bill S.1076 is a strong vehicle for moving in that direction. Given the need for comprehensive involvement of every segment of the population in addressing environmental issues, the Bill can be strengthened by more explicit attention to the needs of the non-professional, non-specialist groups.

We close with a quote from William H. Mansfield, deputy executive director of UNEP, who points out that environmental education is not a luxury, not something to be worked at gradually, and not easy. It is, he said in his address to the "Tbilisi Plus Ten" conference in 1989, "a staggering education challenge and a desperately urgent one. Traditionally our formal education systems have played a central role in bringing about change by shaping new perceptions and values. But with so little time to accomplish so much, the leisurely route is no longer open. We must find ways rapidly to educate a generation of teachers to the new realities so they can educate students who will be the next generation's decision makers. And we must also reschool many mature adults and educate some who have not been schooled earlier, to deal with the mounting and new problems on the horizon."

The need is clear.

Sincerely,

Thomas A. Urquhart
Executive Director

Maureen K. Oates

Maureen K. Oates
Director of Education

MO/pc
c. Senator George Mitchell
Commissioner of Education Eve Bither

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*The responsible voice for Maine's environment and natural resources.*

# ENVIRONMENTAL EDUCATION IN MAINE: A 1989 Survey

Summary of Findings

Recommendations

Appendices

With the generous support of L.L. Bean, Maine Audubon Society surveyed a comprehensive list of agencies and individuals who provide environmental resources and programs (public institutions, private organizations, entrepreneurs) and random samples of those who utilize these programs and resources (educators and the general population). A total of 483 responses were tallied and analyzed: 130 environmental program providers, 209 K-12 public school educators, and 144 individuals from Maine's general population. The overall response rate was 30.4 percent.

The following report details what we have learned about environmental education services throughout the state and the environmental education needs of the public education system and the general population.

There is clear evidence of a need for public commitment and leadership in environmental education along with a need for more equitable distribution of resources and services across the state. This is a challenge, not for Maine Audubon Society alone, but for all agencies and individuals with a concern for the future quality of life in Maine and the role of education in insuring its preservation.

## I. SUMMARY OF FINDINGS

- Environmental education is haphazard.

  A diverse group of public, private non-profit, and for-profit agencies is involved in environmental education in Maine, but less than half consider it to be their primary function. As a result education programs often are driven by the special purpose of the agency and meet consumer/learner needs in random fashion.

- Distribution of environmental resources and programs is uneven throughout the state.

  Resources and programs are concentrated in Cumberland and Kennebec Counties, somewhat available in Penobscot County, and sparse in the remaining thirteen counties.

- Educators recognize a need for environmental education.

  Administrators, science teachers and elementary teachers agree almost unanimously that there is a need for environmental education in the schools.

- Environmental education resources are not adequately available to teachers and the public.

  Educators need resource materials designed for different grade levels. The general population wants current information about environmental issues and guidance to address local problems. Both groups state that resources are not consistently available or adequately accessable at the present time.

- Teachers and the public don't know where to get help.

  Both state and private agencies have prepared public information materials and also curriculum materials, but many of the respondents are unaware of these resources. Part of the problem is a need for better communication about what is available.

- Schools need guidance on developing environmental education curriculum.

  Administrators recognize that occasional lessons dependent on teacher inclination will not result in the necessary level of understanding of our environment. They ask for guidelines that order environmental topics by grade level to assure a comprehensive program that is appropriate for learners of different ages and abilities. They want guidance on integrating environmental education into existing subject areas.

- Support for mandatory environmental education is limited but growing.

  Some teachers suggest a state mandate for environmental education. Others would welcome state or Federal curriculum guidelines. But some administrators are concerned about the possibility of another "add on".

- Most teachers see environmental education as science.

  Environmental educators stress the need to build an early foundation of environmental awareness and caring and to develop problem solving and critical thinking skills as part of basic education in all subject areas.

- Respondents reflect a wide range of consciousness about the environment.

  Comments from interviews reflect a range of concern for the environment. Some respondents are complacent, "haven't given it much thought." Some verge on despair, "the entire world is being lost." Most comments reflect a desire to know more, to be able to act constructively, but many indicate a feeling of personal inadequacy.

## II. RECOMMENDATIONS

These recommendations are based on Maine Audubon Society's analysis of tabulated data from the environmental education survey responses. Recommendations are made in the areas of policy, action, and future goals. Related tasks are listed under each recommendation.

1. Explore the consequences of and alternatives to mandated environmental education.

   - Identify successful models of statewide environmental education.
   - Research effectiveness of mandated environmental education in other states.
   - Involve Maine educators and environmentalists in exploring problems of implementing environmental education.
   - Work with Maine educators and environmentalists in developing consensus on an environmental education mandate or curriculum guidelines in Maine.

2. Establish a coalition of public, private non-profit and for-profit agencies to promote state wide commitment to environmental education.

   * Seek endorsement of the state legislature for the concept of environmental education as part of basic education.

   * Establish a mechanism to coordinate interagency collaboration among the universities, state agencies, and environmental groups for more effective program development and delivery.

3. Promote environmental understanding as part of basic education for students of all ability levels.

   * Expand the perception of educators to include all subject areas, not just science, in their view of environmental education.

   * Encourage appropriate environmental education programs for pre-school children from all socio-economic groups.

   * Address the need for environmental education curriculum guidelines for basic general education K-12.

   * Involve general and at-risk school populations in outdoor education programs that emphasize basic environmental understandings.

   * Include basic environmental education in Vocational Technical Institute curricula along with technical training for environmental job opportunities.

4. Work towards a long-term goal of providing adequate environmental education programs throughout Maine.

   * Establish regional resource centers and develop program opportunities for local populations, working with local interest groups such as Maine Audubon Society chapters.

   * Offer technical assistance for outdoor classrooms and nature trails, along with workshops to promote effective outdoor environmental education.

   * Develop existing Maine Audubon sanctuaries into environmental teaching centers, with programs for families, teachers, school groups, and adult learners.

   * Develop collaborative programs with U-Maine branches across Maine.

5. Expand the availability and diversity of environmental education resources for teachers.

    * Strengthen existing Teachers' Resource Centers for environmental education.

    * Develop a network of satellite teacher resource centers, perhaps situated on U-Maine campuses.

    * Use electronic communication systems to increase access to resources and information networks.

    * Provide Maine-specific resources for hands-on learning experiences.

    * Establish a system of providing topical workshops for teachers to fill the need for background information and specific teaching strategies.

6. Expand the availability of adult education programs and resources about environmental issues.

    * Prepare an environmental education resource guide that provides information by county about existing resources and programs.

    * Develop general courses to provide basic information, exposure to resource people, and strategies for dealing with local problems.

    * Make programs and resources known through the public press, radio spots, and public information centers as well as through Maine Audubon publications.

7. Institutionalize environmental education in the Maine Department of Educational and Cultural Services(DECS).

    * Secure long term support for the School Science and Natural History Enrichment Project through DECS and the state legislature.

    * Insure continued Maine Audubon Society participation in the project through collaboration with DECS.

8. Evaluate current and developing technologies as tools for environmental education.

    * Investigate new information systems such as computerized library files with modem access and whether they are a reality for remote areas of Maine.

    * Research existing environmental videos and software both for quality and availability.

- Provide environmental education programs and/or teacher workshops for ITV, allowing us to evaluate the viability of working with this medium.

## III. LOOKING TO THE FUTURE

Environmental education leaders must include societal advances as well as ecological requirements in planning relevant education programs.

Technology is a given in our society. We need to learn how to use it to promote environmental understanding as well as protection. Interactive television technology will link every school district and university in the state within three years, and can be the means for bringing environmental information and teaching strategies to an expanded audience.

The recent Maine and national education summits reflect a growing societal concern with both the quality and the relevance of current education in our schools. Consequent recommendations include reference to the need for basic environmental understandings and values. As environmental educators, we have the opportunity to work for stronger commitment and support from our political leaders.

Generating that support on a long-term basis involves outreach to a new, more general audience. We need to build new coalitions with the diverse groups who have an interest in Maine's natural resources and quality of life. Such a coalition could bring the diversity of existing programs into focus. It could stimulate effective statewide programs both in school and for adult education. The Department of Educational and Cultural Services, Maine Audubon, and L.L. Bean could be the lead agencies in initiating such a partnership.

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SUBMISSION OF WRITTEN TESTIMONY ON S.1076

Prepared by Dr. Thomas Marcinkowski, Chair,
North American Commission on Environmental Education Research

It is indeed an honor to have been invited to submit written testimony to the Senate Committee on Environment and Public Works pertaining to the renewal of the National Environmental Education Act (S. 1076). This is, indeed, a critical and timely piece of legislation; one deserving of broad, non-partisan support. Since the Senate Committee has taken a leadership role in introducing this piece of legislation, I wish to express my thanks to the Committee Chairperson, the Senators comprising the Committee, and the Committee Staff Members.

There are three particular areas on which I would like to submit comments. These include: (I) comments pertaining to the need for environmental education in general, and this piece of legislation in specific; (II) comments offered in response to questions raised by the Senate Committee; and (III) closing comments. Each area will be addressed in the order outlined here.

## I. The Need for Environmental Education and for S. 1076

In a formal sense, the field of Environmental Education is approximately twenty years old. It grew up with the first National Environmental Education Act, passed in 1970. However, the educational and environmental roots of Environmental Education may be traced back a century or more. They are traceable to the creation of our first national park, our first attempts to grapple with how to manage our nation's bounteous natural resources, and the Nature Study movement. They are traceable to those working at the turn of the century on the preservation of the vast tracts of land which now comprise much of our National Forests and Wilderness system. They are traceable to the creation of Federal level Resource Management Agencies, and to the involvement of those agencies in Conservation Education. They are traceable to the youth camping and Outdoor Education movements, and to the development of ecology as a science. They are traceable to the initial monitorings of environmental impacts, and to the International Coferences of the 1960s. By 1969, the date many cite as the beginning of Environmental Education, a century of groundwork had been laid.

This litany of events and movements places Environmental Education in its historical context. What was new about Environmental Education was its attempt to hold together the scientific understandings derived from ecology and environmental monitoring, the public policy debates over complex environmental issues and management options, and the growing impetus within the 'Environmental Movement' to foster both preventative and curative attempts to address significant environmental impacts. The goals and objectives for Environmental Education agreed to at the Unesco sponsored Tbilisi Conference, and the educational goals and objectives derived from the Tbilisi document all reflect this spectrum of educational concerns. Within this contexts, the purpose of Environmental Education is to foster the development of a citizenry that is:

aware of the total environment, and of human impacts on that environment;
knowledgeable about ecological systems, environmental problems, and the factors which associated with each;
concerned about the environment, and problems associated with it;
skilled in their ability to critically analyze, investigate, evaluate, and help resolve complex environmental problems;
motivated to participate in the resolution of those impacts or problems, and the issues surrounding them; and
actively involved in the resolution of impacts, problems, and issues.

In simpler terms, the purpose of Environmental Education is to foster the development of an 'Environmentally literate citizenry'; i.e., " to aid citizens in becoming environmentally knowledgeable, and above all, skilled and dedicated citizens who are willing to work, individually and collectively, toward achieving and/or maintaining a dymanic equilibrium between quality of life and quality of environment" (Harvey, 1977).

Since 1970, the field of Environmental Education has made great strides. It has move beyond the educational rhetoric and premium on educational innovation which characterizes many young educational movements. Today, there is widespread support for and involvement in Environmental Education throughout the U.S. Federal and State Agencies have shown modest support, as have colleges and universities. Many schools at the K-12 level offer some type of Environmental Education. Moreover, many non-formal educational institutions address Environmental Education in their mission and goal statements, and conseouently deliver programs in this area. The public media have actively attended to environmental events and concerns, portraying them in film, broadcast and print. As a result, a vast majority of the U.S. public today is aware of environmental problems and is actively supportive of environmental reforms.

One may ask the questions, 'If all seems to be going so well, why is there a need for Environmental Education?'. The best response is that all is not really going so well. The results of national opinion polls are indicative of the mood of the nation, but are a poor barometer for progress in addressing environmental impacts and problems. With respect to those impacts and problems, yes, there have been some significant achievements and sucesses. However, some problems continue to limp along as a result of piecemeal efforts (e.g., air quality and solid waste problems), while several persistent problems remain unresolved (e.g., the long-term storage of high level nuclear waste). Moreover, during the 1980s, improved monitoring techniques led to the identification of new problems (e.g., toxic waste disposal and ozone depletion). Finally, as the environmental movement in this country has matured, the political arenas in which environmental reforms are now debated have fallen prey to highly polished lobbying efforts, particularly over the question of "Who will/should pay?". The bottom line is that environmental conditions will continue to require, nay demand, persistent attention and substantial improvement within the U.S. for the forseeable future. The educational sector can make important contributions to such efforts.

At the same time, Environmental Education stands at a mid-life juncture. The results of a handful of national level research studies clearly indicate that the programs which are in place generally have been doing a sound education job of educating our nation's citizens in the areas of ecology and environmental problems. The majority of the public is also aware of the need for measures to resolve environmental impacts and problems. However, these status studies also indicate that programs rarely attend to goals and objectives which address the "skills", "motivation", and "active participation" goals of Environmental Education. Moreover, it is recognized that undue programatic emphasis upon knowledge of environmental impacts and problems (i.e., without due attention to solutions) can lead to feelings of despair and despondency. After all, these are huge, complex problems, aren't they?

Professionals in the field have begun to address these educational conditions in varied ways. There is now underway a process for setting national standards for the field; a process which seeks to enfranchise rather than disenfranchise professionals in differing sectors of the field. Efforts which support the development of a National Environmental Education Network appear ready to bear fruit. Several states, such as Wisconsin, are providing strong leadership in the establishment of comprehensive teacher preparation and programatic guidelines. At the 'grass roots level', there is a more widespread recognition of the need for giving increased attention to "skills", "motivation", and "active participation" goals among teachers in formal and non-formal programs. And, there is a cohesive body of research evidence which indicates how educators can both effectively realize these goals and make important contributions to their students' educational achievement. As an aside, most well thought out thinking skill programs lead to increases, rather than decreases in learner achievement. The skill development component of Environmental Education is no exception to this trend.

The kinds of initiatives which are currently underway will lead the field of Environmental Education down an educationally and environmentally sound path. However, the rate at which such initiatives are pursued will depend upon many factors. These include the mustering of clear vision, collective political will, and the resources to pursue the various kinds of planned and coordinated educational initiatives which are needed. Most, if not all, of these initiatives will require a modest degree of financial support. State Education Agencies, university teacher education programs, K-12, and non-formal programs alike are participating in such initiatives, and are expending resources to support them. However, there are practical limits in the extent to which these types of institutions can do so. Unfortunately, Environmental Education has rarely been accorded a mandate or top priority. In times of scarce resources such as these, initiatives are often rely upon the donation of in-kind services. If the nation is to benefit from such initiatives in the near term, there must be some new prioritization of and allocation of resources for Environmental Education.

Under these circumstances, there is a need and proper role for the Federal Government to organize the efforts of Federal Agencies in support of Environmental Education. Many Agencies are already involved, yet appear to be pursuing a rather circumscribed agenda. Coordination within the Federal Government may be difficult in the short term, though is necessary to realize longer term educational and environmental objectives. With a President who wishes to be known as our "Education" and our "Environmental" President, it would seem prudent to forward a Bill such as S. 1076 for due consideration at this time. Environmental conditions, public opinion, Presidential leadership, and the needs of the field all point to the conclusion that this legislative initiative is emminently warranted. Failure to provide legislative support at this time will only delay, and therefore increase the educational, environmental and economic costs of such efforts in the future.

## II. Comments Offered in Response to Committee Questions and Concerns

The first question raised pertains to the adequacy of the institutional approach proposed in the bill. Would it assure effective implementation of programs and coordination with related programs? I would like to respond to the two parts of this question separately.

This bill would establish an Office of Environmental Education within the Environmental Protection Agency, and would require a Director, not less than ten (10) full-time employees as headquarters staff, and not less than one full-time employee in each Regional Office of this Agency. The responsibilities of these employees, as spelled out within Sections 5 through 10 of the bill, are rather extensive. In addition to those, employees would be required to maintain extensive communications with a wide range of educational and resource agencies at the Federal, State, and local levels. Further, they would be required to provide support services to the newly established National Environmental Education Advisory Council, and to interface with established professional organizations within the field. In the face of current initiatives within the field and of these responsibilities, I would suggest that the minimum number of employees (i.e., ten) would not be able to effectively discharge said responsibilities. To attempt to do so with that number of employees would greatly delimit the quantity and the quality of services provided. This would seem to run contrary to the spirit and intents of the bill. Thus, while I find the wording of the bill to be adequate, I would nonetheless recommend that those responsible for implementation of the bill bear this in mind when establishing the proposed Office and its staff. More specifically, Office staff members should be provided with a level of support commensurate with their responsibilities and with the degree of professionalism expected of them.

The second portion of this question pertains to coordination with related programs. Within the bill, Sections 4.b.10, 4.b.11, and 7.d all refer to the need to coordinate any efforts undertaken as a result of this bill with existing statutes and programs administered within the Federal Government. As is apparent within Federal records, a substantial number of Federal Agencies have been, and continue to be invovled in Environmental Education efforts (e.g., various branches of the U.S. Departments of Agriculture, Defense, Education, Energy, and Interior, as well as other Offices such as the Council on Environmental Quality and Environmental Protection Agency). The establishment of the Environmental Protection Agency as the lead and parent Agency for the proposed Office of Environmental Education would appear to be reasonable in the face of this Agency's current prioritization of and support for Environmental Education. However, this Agency's involvement in Environmental Education is relatively new when compared to that of several of the Departments noted above. A mandate within this bill requiring coordination is wise, and may provide the political impetus for the kind of coordinated efforts required at the Federal level at this time. Nonetheless, for the past five to ten years, the Federal Interagency Committee on Education's Subcommittee on Environmental Education has not been able to establish the kind of coordination and cooperation sought in this bill. It would appear that a mandate alone may not be sufficient to establish coordination and cooperation at the desired and required level. Creation of the Drug Enforcement Agency and attempts to coordinate drug enforcement efforts is a case in point. Under these circumstances, it would appear to be prudent to more clearly address this point, though it need not be done as a part of the bill.

The second question pertains to the balance of teacher preparation, project funding, internships, and other activities. Sections 5 though 8 detail the various types of activities to be supported under the bill. It is difficult to discern the level at which each type of activity would be supported, for this would only become apparent after the bill was passed and the Office established. Nonetheless, it would appear that the authors of the bill have given considerable thought to: (a) the kinds of efforts which are needed within the field; (b) the types of institutions which may best address those needs. In both of these dimensions, it appear that the intents of the bill are clear in seeking to address needs in an open and equitable fashion. My only reservation here has to do with the lack of a working definition for Environmental Education in the bill (i.e., within Section 3), as this will hold serious implications for precisely which areas of need are and are not addressed, and which types of institutions may seek support to address them. I wish to return to this point later.

The third question pertains to the level of funding provided through the proposed Environmental Education Trust Fund. Would the proposed level of funding be reliable and adequate? There are both explicit and hidden dimensions to this question. Certainly, a Federal commitment of $15 million dollars per year is a sizeable one, and far exceeds the current level of support. However, this 'budget' would be used to support the proposed Education and Training Program and the Grants Programs (approximately 30% each), as well as the Office of Environmental Education (approximately 40%). While this appears to be reasonable, I am left with several questions about how other costs would be internalized. For example, is the Advisory Council to be funded, and if so, from which portion of this budget? Also, which portion of this budget will be used to fund the Awards Program? While responses to these questions are of some interest and may deserve attention within the bill, I am left with a broader concern. There are substantial costs associated with each portion of this bill, many of which will be used to defray program administration and management costs. By the time all is said and done, perhaps half of the annual budget would go toward Education, Training, and Grants programs. Moreover, since the bill clearly states "but not in excess of $15,000,000", the annual amount available may be substantially less than $7,500,000.

As stated previously, this is more than is currently provided. Still, in my estimation, this amount would not go very far in addressing the intents proposed within the bill. While it is probably not feasible to consider expanding the limit on the annual amount to be allocated due to Federal budgetary constraints and deficits, the ripple effects of political events elsewhere in the world may allow for this in the not-so-distant future. Perhaps more importantly, passage of legislation establishing more stringent environmental quality standards and increased enforcement may lead to an increase in the sum of penalties paid to the Federal Government. I would therefore like to encourage those responsible for preparing a final draft of the Trust Fund Section of the bill to carefully consider the effects of other pieces of legislation and of other budget allocations on the minimum annual allocation. While careful management may allow the proposed amounts to go a long way, a higher level of funding would clearly demonstrate Federal level commitment to the provisions of the bill, and to the field as a whole.

The final question posed pertains to recommendations for improving and strenthening the bill. I would like to offer two sets of comments in this regard. First, I would recommend not changing the names of any of the awards noted in Section 8 of the bill. I believe there are some who would wish to change the "Theodore Roosevelt Award" to reflect some prominent figure from Nature Study, Outdoor Education, Conservation Education, or even Environmental Education. To use the name of a prominent leader from any of first three movements would misrepresent what Environmental Education is about to the educational community, to the public, and to observers in other nations. Further, in order to minimize organizational and field-related politics, I would also recommend not using the name of a prominent environmental educator in the title. With these points in mind, it would seem prudent to maintain the award as the "Theodore Roosevelt Award." His contributions are very well recognized and respected, and his name is not associated with any particular field or movement in education.

In response to this last question, I would like to offer a second set of comments. As previously noted, Section 3 lacks a working definition for the term "Environmental Education." In my professional estimation, this is a serious omission and the most serious flaw of the bill; one which could seriously hamper effective implementation of the bill and adversely impact the field of Environmental Education. Allow me to elaborate on these points. With limits to the proposed budget and staff, the proposed Office of Environmental Education is very likely to find it difficult to administer programs described in Sections 5 and 6 of the bill. These difficulties will only be compounded if submitters, reviewers, and staff are not provided with a set of clear guidelines about what does and does not constitute Environmental Education. Without such guidelines, the central intent of the bill would be opened up to politicing within and beyond the proposed Office. This would be extremely detrimental to those trying to provide support to the field through the provisions of this bill.

Why do I offer raise this as a concern? As noted at the outset of this testimony, young educational fields (or movements) are prone to rhetoric and innovation. On a more productive note, professionals working within them are also prone both to define what it is they are trying to accomplish and to differentiate their field from others. The field of Environmental Education has been through an extensive process of definition and differentiation (e.g., what Environmental Education is, and why Environmental Education should not be equated with Ecology, Nature Study, Outdoor Education, or the more traditional definition of Conservation Education). The literature in Environmental Education can and should attest to this. I have appendixed a brief bibliography, as these writings help to establish these claims. Failure to take into consideration this leagacy of definition and differentiation will lead staff within the proposed Office to revisit past problems, including those associated with the 1970 Environmental Education Act. In my professional opinion, this should not be allowed to happen.

While any of the writings I have included within this bibliography could provide the Senate Committee with a definition of Environmental Education, I would like to offer a suggestion in this regard. In 1977, Unesco published a document entitled the Final Report of the Intergovernmental Conference on Environmental Education. At that Conference, delegates from 66 Member States and a host of UN/international organizations agreed to a set of goals, categories of objectives, and guiding principles for EE. These were re-affirmed in 1987 at the "Tbilisi + 10 Conference" sponsored by Unesco. The categories of objectives included in that document represent the most widely accepted 'definition' of EE in existence. Still, this 'definition' exhibits several limitations: (a) the categories of objectives need to be more fully spelled out if they are to serve as the basis for educational programs; and (b) they do not fully reflect the research (knowledge) base in the field, as this has largely evolved since the late 1970s. Nonetheless, I believe these categories of objectives could serve as an adequate definition of Environmental Education for the purposes of the Act. Whether the Senate Committee accepts this as a definition, or wishes to use another from the Environmental Education literature, I would strongly recommend that the bill be revised to include a working definition which truly reflect the current thinking about the nature and purposes of the field.

I would also recommend that Sections 4.b.1 and 5.b.1 be carefully reviewed in light of any accepted definition of Environmental Education. The wording of these Sections do not reflect the full spectrum of goals and needs in the field, and so, as currently worded could seriously limit the range of serious needs to be addressed through the bill. For example, a primary emphasis upon ecology, environmental science, and environmental studies would address what the public largely knows and what the programs in the field already accompish reasonably well. Yes, there is room for improvement in educational efforts in these areas. Nonetheless, an emphasis there is not sufficient to involve our citizenry in the resolution of the persistent and complex environmental problems we face. The programatic and behavioral research evidence on this point is very clear. Thus, I would seriously recommend that the Committee consider revisions in these Sections to reflect the full range of goals and needs in the field.

## III. Closing Comments

I would like to begin my closing remarks by stating in no uncertain terms my support for this piece of legislation. It is timely, addresses critical needs in the field, and reflects the sentiments of Government Officials, the scientific community, and the public. It is deserving of broad, non-partisan support.

In my professional opinion, as it is currently worded, this bill could be improved with several modifications. As addressed in my comments, these include (in order of priority):

(1) the addition of an accepted working definition of Environmental Education to Section 3;
(2) the modification of Sections 4.b.1 and 5.b.1 to better reflect the range of goals and needs in the field;
(3) some clearer provision for coordinating Federal efforts and obtaining cooperation of other Federal Agencies within Section 4;
(4) a modification of Section 4.c such that number of full-time staff positions would be adequate to the task, and supported at a level commensurate with stated responsibilities and the desired degree of professionalism; and
(5) an increase in the maximum monetary amount to be made available annually for the purpose of meeting costs and making expenditures.

In closing, I wish to again share my thanks for your invitation to submit written testimony. In the event that any questions arise pertaining to my testimony, or that any member of the Committee wishes to discuss other aspects of this piece of legislation (e.g., the research base in the field, the proposed evaluation requirements within the bill, research and evaluation needs in the field) please know that I would more than happy to respond in a cooperative fashion.

## APPENDIX: A BRIEF BIBLIOGRAPHY OF WORKS PARTAINING TO THE DEFINITION AND DIFFERENTIATION OF ENVIRONMENTAL EDUCATION

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Statement of
The National Association of Public Television Stations
Submitted to the
Committee on Environment and Public Works
United States Senate

February 19, 1990

The National Association of Public Television Stations (NAPTS) is a membership organization representing the nation's 341 public television stations. NAPTS represents its members before Congress and federal agencies, and provides services such as planning, research, and communications expertise. The organization is supported entirely by dues from its member stations and does not receive federal or state funds. The Association appreciates this opportunity to comment on S. 1076.

NAPTS applauds Chairman Burdick and the co-sponsors of S 1076, the National Environmental Education Act, for their introduction of this bill, and for the swiftness in which it is being considered by the Environment and Public Works Committee. Public television considers itself a partner in the mission to heighten public education and awareness of environmental issues as public television stations across the nation launch 1990 as the Year of the Environment. This theme will be reflected in a number of nationally distributed new series and specials, and will also be featured in ongoing programming such as Sesame Street, Mister Rogers' Neighborhood, and the Nightly Business Report.

Equally exciting are the programs being produced to address local and regional issues. For example:

-- Connecticut Public Television has produced four programs in their "Environment 2000" series which have looked at the state's waste management problems, the conflict between developers and natural resource management, preservation of the state's rivers, and endangered plant and animal species.

-- Prairie Public Television in North Dakota is working closely with the state's teachers and school administrators to coordinate classroom activities to complement three new major environmental series which will be broadcast to the state's schools.

-- In Vermont, the state's solid waste crisis has been the focus of heated debate on HOTLINE which allows viewers to participate in the discussion.

-- WPBT in Miami has produced "Run, River Run", which chronicles the restoration of the Kissimmee River and its basin after flood prevention modifications to the river took a severe environmental toll on the area. In addition, five of Florida's public television stations are working closely with their local school districts for local classroom follow-up to national environmental programs such as "Profit the Earth".

-- WCBB in Lewiston, Maine, is coordinating its environmental programming and outreach activities with 24 environmentally conscious organizations and businesses. The station recently aired a locally produced program "Living on a Landfill" which explored the complex problems of solid waste removal. In 1990 the Maine Public Broadcasting Network plans to produce about 2 hours of new programming on state issues in addition to its current state programming on land use, bird and wildlife sanctuaries of the coastal area, and Maine wetlands.

-- Nevada's two public television stations will host a live statewide town meeting in April to address the state's environmental issues.

Public broadcasting offers an extremely cost-effective and powerful teaching resource with access to millions of our nation's students. Public television programming specifically for classroom use reaches 29 million students in elementary and secondary schools. In partnership, public television stations and more than 1500 colleges and universities nationwide provide college-credit television courses to over 250,000 students, many of them working people who could not attend traditional classes.

For the nation's teachers and students and viewers of public television, who each week average about 100 million, the medium's commitment to environmental programming is not new. S. 1076, however, offers the opportunity to expand programming and viewership, to encourage local and individual involvement, and to diversify public broadcasting's community services such as training -- with the overall goals of public education and the nurturing of an environmental ethic.

S. 1076 seems to suggest that limited financial resources dictate that partnerships be formed to provide for the broadest possible dissemination of education materials, training curricula and general information exchange. Public broadcasting was borne of a marriage of educators and other public interest groups and has traditionally been their medium of choice. For example public television's Year of the Environment includes:

-a school campaign -- supported by the National Education Association, National Parent-Teacher Association, American Association of School Administrators, National Association of Secondary School Principals and the National School Boards Association -- will provide posters, teachers tune-in and activity guides on PBS environment programs and a booklet for offering tips on ways students can make a difference. The education associations will assist in promoting and distributing materials to schools nationwide.

-a fall teleconference for educators on how to develop environmental curriculum and incorporate concern for the environment into the classroom.

-development of an extensive "Environmental Resource Compendium" for educators, libraries, and community use.

-guidelines and other resources for youth contests, outdoor events and suggested Earth Day activities, as well as environmental action tips for consumers and for businesses.

-development, with the guidance and cooperation of national environmental groups, of a series of video vignettes for use as fillers on the theme "You Can Make A Difference."

Public broadcasters intend to take an activist role in the programs authorized in S. 1076. While the bill attempts to be inclusive in its eligibility criteria for the programs it will authorize, it is not clear that public broadcasting stations would be eligible to apply. Public broadcasting stations are legally defined by the type of Federal Communications Commission license they hold; not all are considered "not for profit" organizations as defined by section 501(c)(3) of the Internal Revenue Code; they are not local education institutions or State education agencies even though they may be closely associated with these entities. As an absolute clarification, NAPTS recommends that public broadcasters per se are included in the statutory language which defines eligiblity, and throughout the legislation where clarification seems appropriate.

Public broadcasting is a valuable national resource which has a demonstrated interest in environmental issues. It is closely linked to the education and environmentalist communities, and is perfectly poised to play a leading role in reaching millions of Americans to educate, train and motivate. Public broadcasters are eager to engage their national and local audiences in the debate about the future of our fragile planet. We urge the Committee to include specific statutory language which will allow our members to participate in this critical national mission.

NATIONAL ASSOCIATION OF STATE FORESTERS

February 13, 1990

The Honorable Quentin Burdick, Chairman
Senate Environment and Public Works Committee
SD-458 Dirkson Senate Office Building
Washington, D.C. 20510

Dear Chairman Burdick:

The National Association of State Foresters (NASF) appreciates the opportunity to submit written testimony to the Senate Committee on Environment and Public Works concerning S. 1076, the National Environmental Education Act. NASF is comprised of the state forestry directors from each state and three territories. Collectively we assist in protecting, servicing and managing 57 percent of the nation's commercial forest lands.

Please submit the attached testimony into the official record of the February 1 hearing regarding the proposed National Environmental Education Act.

Sincerely,

Larry A. Kotchman

Larry A. Kotchman
North Dakota State Forester
Chairman, NASF Conservation Education Committee

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The National Association of State Foresters

### Comments by the National Association of State Foresters on S. 1076, the National Environmental Education Act

NASF applauds Chairman Burdick, Senator Chaffee, and the many cosponsors of the National Environmental Education Act, for their commitment to improving, what should be, an integral part of our children's education. The intent of S. 1076, to increase public understanding of the natural environment and to advance and develop environmental education and training, is fully supported by NASF. However, NASF would like to raise several concerns for your consideration.

The Act may be enhanced with a formal definition of environmental education. A definition should be inclusive, with both the human-made and natural environment, and should be interdisciplinary. It should also address all levels of the environment, from local to global.

**EPA Office of Environmental Education**
The legislation establishes the Environmental Protection Agency as the lead agency for implementing this act. While NASF agrees that EPA is uniquely qualified in the area of environmental education, NASF feels the participation of the Department of Education (DOE) is vital for assuring the success of this legislation. The DOE is directly linked with primary and secondary schools throughout the nation, providing an important inlet and oversight needed for a program of this scale. NASF believes EPA should, as stated in Section 4, work closely with the DOE and other Federal agencies to coordinate environmental education programs.

NASF is also concerned that much of the specified development work of the Office of Environmental Education may be a duplication of efforts. Many not-for profit organizations have already developed environmental and conservation education information programs. The Office should concentrate on supporting these existing programs and disseminating information already generated.

## Environmental Education and Training Program

NASF has two concerns with the Environmental Education and Training Program. The legislation does not recognize existing conservation and environmental education networks and partnerships. It favors institutions of higher education, overlooking more informal educational entities which have been involved in promoting environmental education. Educational programs such as Project Learning Tree, cosponsored by the American Forest Council and the Western Regional Environmental Education Council and the Fish and Wildlife Service's Project Wild are just two examples of highly successful existing programs.

Related to this, is the concern that the legislation establishes a single training program. A more cost-effective approach would be to capitalize on the broad-based network of successful training programs such as those listed above.

## Environmental Internships

NASF supports the idea of environmental internships but believes they should be redirected towards teachers rather than students. This will benefit in-service and pre-service teachers who need a better understanding of the environment for assisting them in successfully teaching environmental education curricula. These internships should be fully funded, so all agencies may participate.

NASF questions why internships are limited to federal agencies. State agencies could also provide great opportunities for environmental internships. State forestry sponsors of Project Learning Tree already have close ties with teachers across the country. Internships for these teachers would help expand their base of knowledge of the natural environment.

## Environmental Education Advisory Council

The Council should reflect a broad range of environmental interests and philosophies. NASF would like to stress the importance of representation from natural resource management agencies on the Council. Many natural resource agencies have been very active in developing and implementing conservation education programs and would play an integral role on the Council, providing both insight and guidance in incorporating environmental education programs into existing networks.

MARSHAL T. CASE
VICE-PRESIDENT
for EDUCATION

**National Audubon Society**
NATIONAL EDUCATION OFFICE
NORTHEAST AUDUBON CENTER, R.R. 1, BOX 171, SHARON, CONNECTICUT 06069
(203) 364-0520

February 15, 1990

Senator Quentin N. Burdick
Chairman
Committee on Environment and Public Works
United States Senate
Washington, DC 20510-6175

Dear Senator Burdick:

Thank you for your letter concerning proposed bill S.1076 - to increase public understanding of the natural environment and to advance and develop environmental education and training.

I commend you and the committee members for advancing the important need for environmental education leadership from the Federal government through the bill. There is indeed a big need for the Federal government to renew its role in assisting and supporting the entire environmental education network.

Basics of the bill are certainly sound and position the existing national network of environmental education for support from the Federal government. Recognition of the importance of environmental education is as important as providing funding sources.

Emphasis must be placed on networking with existing institutions and better coordinating use of the many excellent materials already available. I would encourage an early assessment of what is available and who it is available from before considering creation of new materials. If gaps do exist, Federal materials could be produced, or contracted for, to fill in specific needs.

The training program is particularly important as many colleges and universities have given up degree opportunities in environmental education. Involvement of teachers in these programs is particularly important. Few classroom teachers have adequate science background and most do not recognize the multi-disciplinary approach through good environmental education curriculum materials. In Audubon's work with several thousand classroom teachers each year, we see a crying need for improving the information and skills bank for teachers. This is particularly true in urban population centers.

AMERICANS COMMITTED TO CONSERVATION

I encourage some recognition for emphasis on minority opportunities and focus in this legislation. This is a critical topic area that is provided much lip service but little substance. Demographics dictate the future in how environmental educators and institutions with environmental education concerns, interests and programs need to address the changing population. Our biggest single challenge will be the urban population centers. Without a strong focus on minority participation and a genuine effort to hire and appoint qualified minorities to funded Federal positions and Advisory Council positions, we will not advance the cause. I personally do not believe that fair hiring practice statements do much, if anything, for securing minority involvement.

Environmental Education Awards are fine and there is a need to recognize dedicated people. However, I would not advocate much time and dollar expenditure in this area of the proposed bill. Funding will be modest and every dollar possible should be allocated to training teachers, networking, and coordinating the massive potential influence of thousands of organizations already working with environmental education materials and programs.

I believe your proposed Advisory Council is an important key to success because there is so much already happening in the field of environmental education. The best mix of members to the council could save millions of dollars during the assessment stage. Coordination and cooperation can advance a national environmental education game plan quickly and with potential rapid state by state legislation initiatives. Without excellent state commitment and involvement, the Federal initiatives will fall short.

Audubon stands ready to assist in your efforts as environmental education is a major focus of our organization. We have particular interest in minority involvement and in encouraging state initiatives where we can bring our large grass roots membership into play. Over three hundred of our local chapters in forty-seven states currently sponsor eleven thousand school classroom environmental education clubs. Special curriculum materials are produced bimonthly for the three hundred twenty thousand youngsters and eleven thousand teachers participating in the program. Seventy thousand youngsters are minority.

Please feel free to call on me if I can be of assistance as you advance the initiative on Federal government involvement in environmental education.

Thank you for the opportunity to comment on proposed bill S.1076.

Respectfully,

Marshal T. Case

Marshal T. Case
Vice President for Education

MTC/pc

**NORTH AMERICAN ASSOCIATION for ENVIRONMENTAL EDUCATION**

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RECEIVED BY
90 JAN [illegible]
ATTN: DL
SENATOR BURDICK

January 23, 1990

Senator Quentin Burdick, Chairman
Committee on Environmental and Public Works
United States Senate
Washington, D.C. 20510-6175

Dear Senator Burdick:

I am writing regarding The National Environmental Education Act (S.1076) which is before your Committee on Environment and Public Works.

I have read the bill and discussed its contents with a variety of people. Persons I have discussed the bill with include teachers, university faculty, environmental educators, environmental group representatives and representatives of business and industry. There has been unqualified support for the legislation from all.

There is an unquestionable need for more federal action in the area of environmental education. A relatively small investment in education of this kind can reduce the need for major financial commitments to repair environmental damage in the future. Environmental education can be viewed as preventive medicine which will be much less costly than the treatments required to reclaim our environmental quality once it has been lost. Increasing environmental literacy in our citizens will result in their making wiser decisions on environmental issues; decisions which will be more oriented toward sustaining our environmental and economic well being.

The approach taken in the bill to establish an Office of Environmental Education within the Environmental Protection Agency makes good sense. A separate Office is needed to deal with this high priority area, and the Environmental Protection Agency, with its responsibility for maintaining environmental quality, is a logical place for such an Office.

The establishment of an Environmental Education Advisory Council is also wise. The Office of Environmental Education and the EPA will need the counsel of representatives from a variety of interest groups if they are to be effective in increasing the environmental literacy of our citizens and reducing and/or eliminating future environmental problems. The North American Association for Environmental Education stands ready to assist this council and would be interested in having one of our representatives serve as a member of the council.

*1990 NAEE CONFERENCE, SAN ANTONIO, TEXAS, NOVEMBER 2 - 7*

Senator Quentin Burdick
Page 2
January 23, 1990

We are also very supportive of the comprehensive approach taken in the bill. The bill deals with important needs related to teacher training, funding for demonstration projects and assessment of environmental education efforts. Creating environmental education staff positions in each of the regional EPA offices will be an effective way to maintain communications with regions and states. This is important since it will allow greater sharing of ideas and approaches that are developed locally.

We are especially pleased with the proposed mechanism for funding the program. It makes good sense to use funding obtained from penalties paid to the government in response to federal enforcement action to finance an Environmental Trust Fund which will provide funding for the Act. What better way to reduce these violations in the future and protect our environment than to enhance the environmental literacy of our citizenry through environmental education. We do hope that there has been a careful analysis done to assure that there will be adequate revenue coming [illegible] the Environmental Trust Fund to finance this Act. The $15,000,000 target figure for each fiscal year is very modest considering the magnitude and importance of the tasks proposed. It would be very unfortunate if full funding would not be available.

The North American Association for Environmental Education is extremely supportive of Senate Bill 1076. On behalf of our Association, I urge you to do everything in your power to secure passage of this much needed legislation.

Sincerely,

Richard Wilke

Richard Wilke
President

cc: Senator Kasten
Senator Kohl
Representative Obey

RW:sc

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February 14, 1990

The Honorable Quentin N. Burdick
United States Senate
Committee on Environment and Public Works
Washington, DC 20510-6175

Dear Senator Burdick:

Many thanks for the opportunity to comment on S. 1076, the proposed new "National Environmental Education Act." In my view, this legislation is sorely needed, and I am delighted that they have initiated it.

I do have several concerns with the Act as it is proposed. Given my "druthers," I would prefer to see the U. S. Department of Education as the host agency, rather than the U. S. Environmental Protection Agency, on the simple grounds that legislation dealing with education logically belongs in the Nation's education agency. Further, it seems strange that an enforcement agency would undertake something that has as its purpose "education." I would make similar statements if any of the Nation's natural resource management agencies had been identified as the host agency.

However, I do agree that past history indicates that the Department of Education is unlikely to do the job. Further, I know of no individual, office, group, etc., within the Department of Education which has either the competence or the commitment to develop and maintain an environmental education program; the priority and the interest do not appear to be there. Given these circumstances, it is possible that EPA is the best place to house it.

I am unclear as to the intent of the designation of a single institution to establish and operate the environmental education and training program. There are many institutions which can and should be involved in such efforts; in my opinion it would make more sense to designate several institutions, perhaps one in each region or (better) one in each state.

Further, I do not believe that the funding proposed is sufficient for the purposes identified--and needed. However, it clearly would be "a good start."

Nonetheless, I am delighted to see this effort, and will follow its progress carefully. It is heartening to know that your office, and others in the Senate of the United States, are taking this sorely needed initiative.

Sincerely,

John F. Disinger

John F. Disinger, Professor
School of Natural Resources

Associate Director
ERIC Clearinghouse for
Science, Mathematics, and
Environmental Education

JFD:kjb

Pocono Environmental Education Center
R.D. 2, BOX 1010, DINGMANS FERRY, PENNSYLVANIA 18328
1-717-828-2319

RECEIVED BY

February 12, 1990

Honorable Quintin N. Burdick, Chairman
Committee on Environment and Public Works
United States Senate
Washington, DC 20510-6175

Dear Senator Burdick:

As chairman and coordinator of The First National Congress for Environmental Education Futures: Policies & Practices and President of the Pocono Environmental Education Center, I am delighted to comment in support of your proposed National Environmental Education Act.

Those of us who gathered at that congress agreed that problems exist with education about the environment and that something must be done to resolve them. This "something" is a primary challenge for those of us who represent the now fifty plus Alliance for Environmental Education organizations collectively addressing national issues in environmental education. President Bush in his recent State of the Union message identified education and environment as critical concerns. This message is heartening to environmental educators; however, were we ready for it? Do we have a vision, a consensus on goals, a sense of priorities within our own organizations, let alone with regard to state, regional, national, and global environmental education needs? The answers vary from organization to organization and even among members within our organizations.

Yes, environmental education will need financing. However merely to ask government for more as we did in the seventies, probably won't work. Neither will a divided adversarial front. A model is needed for environmental organizations, governmental and non-governmental, that helps us to work better cooperatively. Diversity remains a desirable attribute of the movement for education about the environment. It remains a source of strength. Efforts to enhance excellence and to expand public support must be pressed by the conjoining of interests that embrace sectors of Federal government and the environmental education community. These efforts require cooperation and commitment as never before. The demand for active leadership and statesmanship among us is at its greatest.

This National Environmental Education Act marks the beginning of a major initiative that focuses on action in arenas of both policy and practice. There are active leaders representing diverse interests from business, industry, foundations, and education who applaud increasing Federal efforts to inform and educate the public about the environment through the Environmental Protection Agency. We welcome inclusion of not-for-profits as partners with EPA in this process. Exemplary public - private sector partnerships viz. National Park Service and Pocono Environmental Education Center have been working well for nearly two decades. Cooperative activities utilizing National Parks as non-consumptive educational resources for teaching about the environment would be an effective way to coordinate with related programs. The charges to the Office of Environmental Education within EPA's Office of External Affairs are comprehensive and appropriate.

Members of the Coalition through the Alliance for Environmental Education's National Network for Environmental Education bring broad experience to the initiatives you propose in the National Environmental Education Act and are willing to assist to assure effective implementation of the proposed program. Enclosed please find information about the coalition for your record and review.

Respectfully,

John Padalino

John Padalino, Chairman
Environmental Education
Coalition

## ENVIRONMENTAL EDUCATION COALITION

In response to the mandate approved by Resolution 15 of the FIRST NATIONAL Congress for Environmental Education Futures: Policies & Practices to establish an action committee to carry forward the Recommendations of the Congress, Coordinator John Padalino has brought together a Coalition for Addressing the First EE Congress. The aims, membership and operating mode of the Coalition are outlined below. Representatives and their designees make up the Coalition. The Coalition held its first meeting on December 12, 1983, in Washington, DC.

### AIMS

The purpose of the Coalition is to enhance the role of member organizations in bettering pre-college education in, for, and about environment throughout the United States. In light of the complexity of schooling and education in America, the central focus of the Coalition is on how member organization can best act in concert. More specifically, the aims of the Coalition are to:

* Help upgrade the status and competence of teachers;
* Help improve the environmental experiences of students;
* Help increase citizen literacy in the environment; and
* Help inform the political system as it formulates policies that affect environment, schooling, and education in America.

**NAME**: Coalition for Addressing the First EE Congress

The name is intentionally succinct and is meant to include the various EE Congress member organizations.

### MEMBERSHIP:

Membership in the Coalition shall be open to affiliated organization of the Alliance for Environmental Education, EE Congress co-sponsors, and comparable organizations which share the aims of the Coalition. Representatives of member organizations (education officers or their equivalents) shall be listed in the Director of the Coalition.

## OPERATION:

The Coalition is conceived as an informal partnership working together on specific collective goals. As a means of achieving these goals, the Coalition's efforts will consist of:

- * Projects - joint efforts having specific foci with identifiable tasks and volunteer/commissioned agents;
- * Events - seminars, symposia, conferences, congresses which advance the aims of the Coalition; and
- * Communications - internal exchange of necessary information and external distribution of information.

## MEETINGS/STEERING GROUP/SECRETARIAT

There will be general meetings of representatives of the member organizations in the Coalition.

A steering group, whose membership will change periodically, will determine the agenda for the general meetings of the Coalition and will provide guidance and direction between general meetings. Specific committees and sub-committees will meet only as necessary to facilitate operation of the Coalition.

The Alliance for Environmental Education is willing to serve as the Secretariat for the First Coalition.

## The First National Congress for Environmental Education Futures Policies & Practices

**General Session: Resolution 15**

Whereas, Congress participants have met to identify and debate policy needed to guide the future of environmental education; and

Whereas, Participants have actively experienced a wide variety of state-of-the-art practices in the field of environmental education; and

Where as, The participants have reached consensus on needed policy and examined and synthesized future practices in environmental education; therefore, Be it resolved,

A. That a committee be established to oversee the development of an action plan to carry on the work and implement the recommendations of this Congress.

B. That the Congress Coordinator and the Program Chair of the First National Congress on Environmental Education Futures: Policies and Practices be selected to co-chair the committee.

C That each of the Congress sponsors, co-sponsors and six Policy Track groups be invited to select a representative to serve as the committee, and that the chair-persons invite at least four persons from the Practices Track to serve on the committee.

D. That within 90 days of the close of this Congress, the committee synthesize Policy Track recommendations to produce a list of policy statements that reflect the consensus of this Congress. This list shall be shown to members of each Policy Track Group for comment.

E. Within 90 days, the committee also prepare an action plan for continuing the work of the Congress and implementing Congress recommendations. This plan shall be reviewed by Congress sponsors, co-sponsors, and Track representatives to elicit comments on practicality and on the adequacy of the synthesis of Congress intentions. The plan will include a mechanism for establishing a permanent committee to oversee the implementation of the plan and for evaluating progress towards achieving the intents of the Congress as reflected in the goals and objectives of the plan.

project WILD
P.O. Box 18060, Boulder, Colorado 80308-8060
(303) 444-2390

February 14, 1990

Senator Quentin Burdick
Chair, Committee on
Environment and Public Works
Washington D.C. 20510 - 6175

Dear Senator Burdick:

This letter is sent to you as comment concerning proposed legislation, Senate Bill 1076, the national Environmental Education Act.

We are writing from our vantage as the policy setting body for the most widely used conservation and environmental education program for kindergarten through high school teachers in North America. That program is Project WILD, created in 1980 and co-sponsored at the national level by the Western Regional Environmental Education Council (WREEC) and the Western Association of Fish and Wildlife Agencies.

We think there are some aspects of Project WILD and its effectiveness that are especially relevant to this proposed legislation. In particular, Project WILD is the result of a unique cooperative effort. The primary sponsors of Project WILD are state level wildlife agencies. These public agencies work cooperatively with state education agencies, local schools, universities, private non-profit organizations, community groups and others--but the important and relevant point for your consideration is the proven effectiveness of public natural resource agencies in taking leadership to improve education. It is this model that you are considering at the national level by having the Environmental Protection Agency take the lead in administering the new Environmental Education Act. While genuine cooperation with educators is essential, we also want to assure you that public environment-related agencies can take appropriate leadership in the area of environmental education.

We are happy to provide more information. Some background concerning Project WILD is attached. Thank you for your initiative in this important area.

Sincere regards,

Gene Allen

Gene Allen, Chair
Project WILD Steering Committee

Project WILD, a K-12 supplementary conservation and environmental education program emphasizing wildlife, is a joint project of the Western Association of Fish and Wildlife Agencies and the Western Regional Environmental Education Council.

project WILD
P.O. Box 18060, Boulder, Colorado 80308-8060
(303) 444-2390

February 14, 1990

Senator Quentin Burdick
Chair, Committee on
Environment and Public Works
Washington D.C. 20150 - 6175

Dear Senator Burdick:

I appreciate your invitation to provide written testimony concerning Senate Bill 1076, the national Environmental Education Act. I am personally supportive of this legislation. This letter will indicate some of the reasons for my position--stated in brief. I am happy to provide more detailed information.

First, I will respond to the specific questions you raised in your letter of January 19. Then I will provide additional comments concerning environmental education in the United States in general. Finally, I will offer information about Project WILD, the national level environment and conservation education program I have served as Director since its formal beginning in January of 1981.

### Response to Your Questions

You ask if there is a need for the federal government to renew its role in assisting and supporting existing environmental education programs and efforts. I think there is value in the federal government providing this assistance and support. Through my years as national Director of both Project Learning Tree and Project WILD--the two most widely used environment education programs for kindergarten through high school teachers in North America--I have seen strong and effective leadership from state-level public agencies. Through persistent and systematic effort, there are now strong networks in place in support of environmental education in this country--with the most consistent and substantial support at present in terms of personnel and direct funding coming from state wildlife agencies and private industry. Federal dollars and leadership at this time will serve to nourish and build upon the progress made at state and local levels for many years.

The institutional approach proposed in this bill is conceptually feasible. The Environmental Protection Agency (EPA) can serve appropriately as the administrator; however, the agency will need the strong support of full funding for the proposed legislation. It will be essential for strong leadership to be hired to manage and staff the Office of Environmental Protection. The Agency will need to build true cooperative relationships with the Department of Education as well as all environment-related agencies in the federal government.

Project WILD, a K-12 supplementary conservation and environmental education program emphasizing wildlife, is a joint project of the Western Association of Fish and Wildlife Agencies and the Western Regional Environmental Education Council.

The mix of teacher education, project funding, internships, and other activities still needs work. I suggest building in some flexibility to the authority of the administrator and the advisory council.

Whatever funding mechanism is established, I recommend one that is reliable. I personally think a dedicated funds approach is appropriate--where monies are generated from some environment-related sources (penalties, user fees, etc.) and restricted in use for environmental education.

Overall, and on reflection, I would rather not see this legislation enacted if it is not funded adequately and managed by experienced, appropriately qualified personnel. We run the risk of displacing local and state-level commitments with some reliance on a new national-level initiative. Ideally, we can create new national-level leadership that will complement and support the already active and growing local and state initiatives. Any other approach will be a disservice. Despite that caution, I am enthusiastic in my support of this legislation.

## Environmental Education in General

I have been working in the field of environmental education, with national level responsibilities throughout this time, since 1973. I have had the opportunity to work with educators and resource professionals in literally every state. We have seen substantial progress--and yet, education about the environment is still not a visible priority in most of the schools of this nation. While we have made gains--environmental education is still piecemeal not pervasive, spotty rather than systematic. There are exceptions. I would be pleased to offer more detailed information. For now, it is sufficient to say that there is a great need for the kind of assistance and encouragement this legislation is designed to provide.

## Project WILD

Attached is additional information about Project WILD. The Project is currently available in 47 states and most Canadian provinces. More than 40,000 educators each year are participating in Project WILD workshops averaging seven hours in length. More than 15 million students to date have benefited from teachers using Project WILD in their instructional programs.

The Project is a long-term effort to improve education about the environment. We would be pleased to provide you with more information about the characteristics of this program--including those which have contributed most substantially to its success and effectiveness.

Thank you again for this opportunity to offer a perspective concerning this important legislation. Please let me know if I can be of any assistance as the Environmental Education Act makes its way through the legislative process. I commend your interest and initiative, and am pleased to offer my sincere support and encouragement.

Respectfully,

Cheryl Charles

Cheryl Charles, Ph.D.
Director, Project WILD

encl.

THE UNIVERSITY OF MICHIGAN
**School of Natural Resources**

February 6, 1990

Mr. Richard Innes
Environment and Public Works Committee
458 Dirksen Office Building
Washington D.C. 20510

Dear Mr. Innes,

I would like this letter to be entered into the record, if possible, for the public hearings your committee held for S. 1076, the National Environmental Education Act.

I am an environmental educator and have been employed as such for the last 15 years. I was recently on the faculty at the University of Wisconsin-Stevens Point, and am currently completing my doctorate in environmental education and cognitive psychology at the University of Michigan. I strongly support the concept of a national bill and federal support for environmental education in the United States.

There are several elements of S. 1076, however, that greatly distress me. These fall into 3 broad issues:

1. There appears to be a general omission of the essence of environmental education. Although EE is not defined in Section 3, several statements in Section 2 (5 and 7) refer to efforts to increase citizens' understanding of the natural environment and problems. This is not the goal of environmental education, but rather, environmental science. Environmental education builds on a framework of information and knowledge of the problem but also includes developing the knowledge about solutions and the attitudes, motivation, skills, and commitment needed to work toward the solutions to environmental problems. EE is, in essence, education for solutions, not about problems. Many people are aware that smoking is hazardous, that their landfill is filling up, or that they are heating the air outside their home when the furnace comes on. But not everyone has the knowledge, motivation, skill and interest in doing something about these concerns. It is critical that EE programs and curricula work to address much more than information about the problem.

Therefore, I would suggest that the language in Sections 2.5, 2.7, 4.b.1, and 6.b.2 reflect the broader goal and intent of environmental education, that of developing knowledge, attitudes and skills to solve problems.

2. Section 5 speaks to an Environmental Education Training Program for teachers. It is quite appropriate that an effort such as this receive federal funding. However, given that there are hundreds of programs currently operating to train a limited number of teachers, I am extremely surprised to see that S 1076 would only fund one program. There are so many different applications, skills, teaching methods, and curricular materials in EE that one center, university, or program could never begin to do justice to the field or to the teachers who would like further training. We certainly wouldn't consider one institution for science education to serve the US. Our environment is no less important and no less diverse.

I recommend that Section 5.c.1 instead allow for the Administrator to authorize grants to institutions on the basis of established criteria, perhaps allowing for a variety of contents, teaching methods, and materials to be available across the country.

Dana Building 430 E. University
Ann Arbor, Michigan 48109-1115

3. I don't wish to undermine the critical importance of a professional environmental work force, but I believe that the ability of the professionals to understand and do their job well is in large measure determined by the understanding that the local citizens have about the issues and potential solutions. Therefore, I propose that Section 2.4 read "...requires a well educated and trained, professional work force and citizenry."

Along the same lines, post-secondary students and Federal agencies could benefit from internships with agencies involved in environmental education (not solely environmental issues)--learning how to effectively deliver messages, produce publications, and design educational programs with the BLM, USFS, NPS, NOAA, SCC, CEQ and others. I recommend that "and environmental education" be inserted into Section 7.b, line 9.

I realize that many Federal education efforts are implemented through State Departments of Education. Although many states do not have an EE program, some do, and others might develop one if federal funding were available. In Wisconsin a great many highly successful programs have been implemented through the state agencies. I would recommend that your committee consider a Section in S 1076 to support state-wide opportunities--both existing programs and new developments.

And finally, we'll definitely need more money to really do a good job of everything that needs to be done, but I'm sure you've heard that line before! We are talking about the basics this time, though. Water, air, soil, energy, and plants and other animals are the building blocks that keep our economic, social, military, and cultural systems afloat. It would be a shame for the whole structure to come tumbling down for lack of a supporting foundation.

Thank you and the rest of the committee and staff for your time and efforts in developing and supporting S 1076. We all look forward to its passage and implementation.

Sincerely,

Martha C. Monroe

Martha C. Monroe

602 North Segoe Road #601 Madison WI 53705

UNIVERSITY OF WISCONSIN-MADISON

CENTER FOR ENVIRONMENTAL
COMMUNICATIONS AND EDUCATION STUDIES

Schools of Natural Resources •
Education • Journalism and
Mass Communication
433 North Murray Street
Madison, Wisconsin 53706

The Honorable Quentin N. Burdick, Chair
US Senate Committee on Environment and Public Works
Washington DC 20510

22 Jan 90

Dear Senator Burdick:

As 1969 founding Executive Editor of The Journal of Envaironmental Education, 1980 President of the North American Association for Environmental Education, 1981 National Wildlife Federation Conservation Educator of the Year, and current member of the NWF Board of Directors' Environmental Education Committee, I'm delighted at the opportunity to respond to your request for comments on Senate Bill 1076, creating a National Environmental Education Act:

1. Is there a need for such an Act? The Bill's preamble says it all.

2. Is the Bill's institutional approach sound? Absolutely. The EPA is clearly the place to lodge a revitalized Office of Environmental Education, particularly under Bill Reilly and the caliber of Advisory Council he will surely nominate and attract.

3. Does the Bill provide for a proper mix of activities. Definitely yes.

4. Is the proposed Environmental Education Trust Fund feasible? Highly imaginative.

5. Any recommendations for improving the Bill? I guess I'd consider placing the OEE chief directly under the Administrator, and review the suggested percentage split in OEE expenditures. But these points are picayne; I wouldn't change anything substantive. The present Bill is so much better than the initial draft I saw that the improvement is breathtaking, and obviously reflects the thinking of some of the best minds in the field.

You, your fellow Committee members, and your staff are to be congratulated on a magnificent leadership role in a crucial area.

Sincerely,

Clay Schoenfeld

CLAY SCHOENFELD
Emeritus Professor and Chair

Water Pollution Control Federation

601 Wythe Street
Alexandria, VA 22314-1994
(703) 684-2400
FAX (703) 684-2492

January 31, 1990

The Honorable George J. Mitchell
176 Russell Senate Office Bldg.
Washington, D.C. 20510

Dear Senator Mitchell:

On behalf of the Water Pollution Control Federation, I want to commend you for introducing S. 1076, the National Environmental Education Act.

As a professional organization made up of civil and environmental engineers, wastewater treatment plant operators, government officials, scientists, and academics, we are acutely aware of the need to better educate the public on sound environmental principles and to train future environmental leaders. The Federation is dedicated to educating the public on issues concerning water quality, and we support efforts by private organizations and the government to increase public awareness of environmental issues.

We hope that enactment of this legislation also would provide the foundation for a new generation of professionals in the environmental field, young people who would become well-versed in both the policy and scientific aspects of environmental issues.

Once again, we commend you on introduction of S. 1076. The Federation stands ready to provide any type of support you may need in order to bring about passage of this bill.

Sincerely,

Arthur Saarinen Jr

Arthur W. Saarinen, Jr.
President

PRESIDENT
Arthur Saarinen
Maitland, FL

PRESIDENT-ELECT
C.B. Kaiser, Jr.
St. Louis, MO

VICE PRESIDENT
R.J. Dolan
Martinez, CA

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PAST PRESIDENT
J.E. Abbott
Denver, CO

EXECUTIVE DIRECTOR
Quincalee Brown
Alexandria, VA

WESTERN REGIONAL ENVIRONMENTAL
EDUCATION COUNCIL
RUDY SCHAFER
EXECUTIVE DIRECTOR
2820 Echo Way
Sacramento, CA 95821
(916) 971-1953

January 28,1990

Senator Quinten N. Burdick
US Senate, Washington DC

Dear Senator Burdick,

Thank you for offering me the opportunity to comment on the proposed Federal Environmental and Training Act (S.1076).

I have been involved in environmental education for the past 30 years. I served as Environmental Education Program Director for the California State Department of Education prior to my retirement in 1987. I served on the national EE Advisory Council created by the Federal EE act of 1970, and served two terms as President of the Alliance For Environmental Education. I founded the Western Regional Environmental Education Council (WREEC) which produced Project Learning Tree, and Project WILD, and currently serve as Executive Director of that organization. I also serve as a member of the National Wildlife Federation Board of Directors.

In response to your first question, yes I am supportive of renewed Federal support and participation in EE nationally. Wise use of natural resources and protection of environmental quality presupposes an informed citizenry with the knowledge, skills attitudes and commitment necessary to make wise personal and social decisions in these vital areas. There is considerable evidence to support the contention that the education community, at least at the elementary and secondary levels, does not see such instruction as being a major priority, and therefore does not commit sufficient human or fiscal resources to such programs. In my view, Federal encouragement and assistance is clearly needed.

Your second question concerns the institutionalization of the program. I believe EPA should be the agency responsible for administration of the program because I sense a strong commitment on the part of those involved to make it succeed. It will also be important to establish the necessary relationships with FICE and the Dept of Education

Having served on the Advisory Council for the EE Act of 1970, I am aware of the problems which can result from such an arrangement, but the basic idea is good. What you will have to do is to (1) make sure that all members chosen have something worthwhile to contribute (2) Give them some real authority to make decisions, and (3) keep politics out of the process.

Your third question concerns the mix of activities. I see no basic problem here. I would note that teacher training has been proven to be an excellent and cost effective means of getting EE into the schools. Assuming that a trained teacher will be in contact with a minimum of 30 youngsters the very next day, and that he or she might well go on to serve for five to ten years more, that translates into hundreds of students reached. Pre-service teacher training is particularly important because at this level you can reach teachers in the formative years of their professional careers, and perhaps achieve a potential twenty year "payback" through your efforts

A study by the Rand Corp. some years ago noted that educational change must be both a "top down" and a "bottom up" process if success is to be achieved. In other words, administrators must want and be willing to support the program if the teacher training effort is to be successful. Adequate resources must be allocated to bringing about this essential administrative support and participation

Your third question concerns the Trust Fund. It seems like a good idea to use funds obtained through fines on polluters, but I do not know if this will provide the basis for an effective and long-term program. I have no specific comments on this issue other than to state that we must allocate adequate resources to the task if we hope to achieve the desired results

Your final question requests specific recommendations for improving or strengthening the bill. My overall impression is that the provisions outlined are adequate to do the job. Following are some specific suggestlions:

--I would like to see environmental education more adequately defined so that it is clear that we are not talking about science or nature study programs only. Good programs may well involve science and nature study, but they need be much broader than that. Civics,history, practical arts, communication skills--in fact nearly every aspect of the curriculum can and should be involved. Environmental education was defined in the 1770 act. Although not perfect, that definition did spell out the interdisciplinary nature of EE. Here is the basic definition I used in the California program:

"Environmental Education is a multidisclipanary educational process through which the learner gains the knowledge, skills, and attitudes as well as a commitment to make wise personal, and social decisions in respect to the utilization of natural resources, and the protection of environmental quality"

--In respect to the EE and Training program (Section 5) I would recommend that this program be decentralized, and that emphasis be placed on the training of trainers--that is personnel who work with teachers--on a pre- and in-service basis rather than trying to train teachers directly. Train the key people in the various regions of the country and get a commitment from them to work with those whom they regularly serve. This is a much more cost effective and efficient way of doing things than bringing great masses of people together at some central location.

As noted above, the training efforts should be also directed at the decision makers in the educational establishment.-principals, supervisors,superintendents, and Chief state school officers . Their support is essential.

-- I would also recommend that the term "educational professionals"(line 9, page 7) be modified to permit the inclusion of lay youth leaders and resource management personnel in the proposed national training program. A large part of the success of Projects WILD and Learning Tree is due to involving such people as foresters, citizen conservationists, scout leaders, wildlife managers, and industry people in the training of teachers, the development of curriculum, and other aspects of the programs.

--Involve local and state education agencies in the grant award program. Bringing them in to the process helps avoid "turf" problems, and assures you that you are dealing with organizations which have local credibility

--Provide for grants which will facilitate interaction and cooperation between states. WREEC is an excellent example of what can be done when state agencies work together on a regional basis. It is most difficult to get much interstate cooperation without federal encouragement and at least some resources

--Encourage school-community interaction in funding local projects. In my 20 years' experience running an EE grant program in California, I found that such projects are usually successful. We also had great success with our "EE Fairs" in which community groups, business and industry, resource management agencies, and educators got together to share information, expertise and materials on EE.

I do hope these comments and suggestions will prove to be of value. Please feel free to contact me if I can be of further assistance.

Rudolph J.H. Schafer
2820 Echo Way
Sacramento CA 95821
(916) 971-1953

February 16, 1990

Senator Quentin N. Burdick
Chairman, Committee on
Environment and Public Works
Washington, DC 20510-6175

Dear Senator Burdick:

I appreciate your willingness to let me testify in person concerning U.S. Senate Bill 1076, and am sorry that my schedule did not permit my doing so. I would welcome another opportunity to speak with you and your colleagues in the future. For the record, I am fully and enthusiastically in support of this proposed legislation.

Environmental health and the quality of life are among the most compelling issues of the 1990s, the decade of the environment. Education, coupled with responsible action, is key to creating a healthy and sustainable future. I support a process of education that prepares citizens to make informed and responsible decisions affecting the environment. This proposed legislation is designed to support that process.

I have recently had the opportunity to talk personally with the administrator of the Environmental Protection Agency (EPA), Bill Reilly. I think the EPA is the appropriate agency to administer this legislation. It is important that the EPA do so with a bias toward cooperation, committed to working closely with the appropriate education agencies as well as a range of environment-related agencies, the business community, civic leaders, volunteers and others. Environmental quality depends upon a cooperative spirit and an informed citizenry.

Let me know if you would like me to comment in person, or to provide more detailed testimony. I sincerely appreciate your leadership and that of your colleagues. It is time to take a stand for a healthy environment and a sustainable future. Thank you for your commitment and support.

Respectfully,

John Denver, President
Windstar Foundation

100% recycled paper

THE WINDSTAR FOUNDATION 2317 SNOWMASS CREEK ROAD, SNOWMASS, CO 81654 303-927-4777 FAX 927-4779

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101st CONGRESS
1st Session

# S. 1076

To increase public understanding of the natural environment and to advance and develop environmental education and training.

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## IN THE SENATE OF THE UNITED STATES

May 18 (legislative day, January 3), 1989

Mr. Burdick (for himself, Mr. Chafee, Mr. Mitchell, Mr. Moynihan, Mr. Simon, Mr. Cohen, Mr. Conrad, Mr. Jeffords, Mr. Bentsen, Mr. Reid, Mr. Lieberman, Ms. Mikulski, Mr. Adams, Mr. Kasten, Mr. Sasser, Mr. Dodd, Mr. Daschel, Mr. Sarbanes, Mr. Fowler, Mr. Biden, Mr. Sanford, Mr. Gorton, and Mr. Baucus) introduced the following bill; which was read twice and referred to the Committee on Environment and Public Works

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# A BILL

To increase public understanding of the natural environment and to advance and develop environmental education and training.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,*

### SECTION 1. SHORT TITLE AND TABLE OF CONTENTS.

(a) Title. —This Act may be cited as the "National Environmental Education Act".

(b) Table of Contents.—

Sec. 1. Short title and table of contents.
Sec. 2. Findings.
Sec. 3. Definitions.
Sec. 4. Office of Environmental Education.

Sec. 5. Environmental education and training program.
Sec. 6. Environmental education grants.
Sec. 7. Environmental internships.
Sec. 8. Environmental education awards.
Sec. 9. Environmental Education Advisory Council.
Sec. 10. Environmental Education Trust Fund.

**SEC. 2. FINDINGS.**

The Congress finds that—

(1) Threats to human health and environmental quality are increasingly complex, involving a wide range of conventional and toxic contaminants in the air and water and on the land.

(2) There is growing evidence of international environmental problems, such as global warming, ocean pollution, and species diversity, and that these problems pose serious threats to human health and the environment on a global scale.

(3) Effective response to complex environmental problems requires understanding of the natural environment and awareness of environmental problems and their origins, and the skills to solve these problems.

(4) Development of effective solutions to environmental problems and effective implementation of environmental programs requires a well educated and trained, professional work force.

(5) Current Federal efforts to inform and educate the public concerning the natural environment and environmental problems are not adequate.

(6) Existing Federal support for development and training of professionals in environmental fields is not sufficient.

(7) The Federal Government, acting through the Environmental Protection Agency, should work with local education institutions, State education agencies, not-for-profit educational organizations, and private sector interests to support development of curricula, special projects, and other activities, to increase understanding of the natural environment and to improve awareness of environmental problems.

(8) The Federal Government, acting through the coordinated efforts of its agencies and with the leadership of the Environmental Protection Agency, should work with local education institutions, State education agencies, not-for-profit educational organizations, and private sector interests to develop and support methods, practices, and programs to assure the highest level of education and training, including technical and scientific skills, of professionals in environmental fields.

## SEC. 3. DEFINITIONS.

For the purposes of this Act, the term—

(1) "Administrator" means the Administrator of the Environmental Protection Agency;

(2) "Agency" means the United States Environmental Protection Agency;

(3) "Federal agency" or "agency of the United States" means any department, agency or other instrumentality of the Federal Government, any independent agency or establishment of the Federal Government including any Government corporation;

(4) "Secretary" means the Secretary of the Department of Education;

(5) "local education agency" means any education agency as defined in section 198 of the Elementary and Secondary Education Act of 1965 (20 U.S.C. 3381); and

(6) "not-for-profit" organization means an organization, association, or institution described in section 501(c)(3) of the Internal Revenue Code of 1986, which is exempt from taxation pursuant to the provisions of section 501(a) of such code.

## SEC. 4. OFFICE OF ENVIRONMENTAL EDUCATION.

(a) The Administrator shall establish an Office of Environmental Education within the Office of External Affairs.

(b) The Office of Environmental Education shall—

(1) develop and support programs and related efforts to improve understanding of the natural environment, and the relationships between humans and their

environment, including the global aspects of environmental problems;

(2) support development and dissemination of model curricula, educational materials, and training programs for elementary and secondary students and other interested groups;

(3) develop and disseminate, in cooperation with educational and environmental organizations, environmental education publications and audio/visual materials;

(4) develop and support environmental education seminars, training programs, and workshops for environmental professionals, as provided for in section 5 of this Act;

(5) manage Federal grant assistance provided to local education agencies, institutions of higher education, and other not-for-profit organizations under section 6 of this Act;

(6) administer the environmental internship program provided for in section 7 of this Act;

(7) administer the environmental awards program provided for in section 8 of this Act;

(8) provide staff support to the Environmental Education Council provided for in section 9 of this Act;

(9) assess the demand for professional skills and training needed to respond to current and anticipated environmental problems and cooperate with appropriate institutions, organizations, and agencies to develop training programs, curricula, and continuing education programs for teachers, school administrators, and related professionals;

(10) assure the coordination of Federal statutes and programs administered by the Agency relating to environmental education and work to reduce duplication or inconsistencies within these programs;

(11) work with the Department of Education, the Federal Interagency Committee on Education, and with other Federal agencies to assure the effective coordination of programs related to environmental education;

(12) provide technical assistance to local education agencies, State education and natural resource agencies, and others; and

(13) otherwise provide for the implementation of this Act.

(c) The Office of Environmental Education shall—

(1) be directed by a Director who shall be a member of the Senior Executive Service;

(2) include a headquarters staff of not less than ten full-time equivalent employees; and

(3) be supported by not less than one full-time equivalent employee in each Agency regional office.

### SEC. 5. ENVIRONMENTAL EDUCATION AND TRAINING PROGRAM.

(a) There is hereby established an Environmental Education and Training Program. The purpose of the program shall be to train educational professionals in the development and delivery of environmental education and training programs and studies.

(b) The functions and activities of the program shall include, at a minimum—

(1) classroom training in environmental education and studies including environmental sciences and theory, educational methods and practices, and topical environmental issues and problems;

(2) demonstration of the design and conduct of environmental field studies and assessments;

(3) training in development of environmental programs and curriculum;

(4) sponsorship and management of international exchanges of teachers and other educational professionals involved in environmental programs and issues;

(5) maintenance of a library of environmental education materials, information, and literature;

(6) evaluation and dissemination of environmental education materials, training methods, and related programs;

(7) sponsorship of conferences, seminars, and related forums for the advancement and development of environmental education and training curricula and materials; and

(8) such other activities as the Administrator determines to be consistent with the objectives of this Act.

Special emphasis should be placed on developing environmental education programs, workshops, and training tools which are portable and can be broadly disseminated including development of computer networks.

(c)(1) The Administrator shall make a grant on an annual basis to an institution of higher education or other research institution which is a not-for-profit institution (or consortia of such institutions) to establish and operate the environmental education and training program required by this section.

(2) Any institution of higher education or other research institution (or consortia of such institutions) which is a not-for-profit organization and is interested in receiving a grant

under this section may submit to the Administrator an application in such form and containing such information as the Administrator may require.

(3) The Administrator shall award grants under this section on the basis of—

(A) the capability to develop environmental education and training programs;

(B) the capability to deliver training to a range of participants and in a range of settings;

(C) the expertise of the staff in a range of appropriate disciplines;

(D) the relative economic effectiveness of the program in terms of the ratio of overhead costs to direct services;

(E) the results of any evaluation under paragraph (5) of this subsection; and

(F) such other factors as the Administrator deems appropriate.

(4) No funds made available to carry out this section shall be used for the acquisition of real property (including buildings) or the construction or substantial modification of any building.

(5) The Administrator shall establish procedures for a careful and detailed review and evaluation of the education and training program to determine whether the quality of the

program being operated by the grantee warrants continued support under this section.

(d)(1) Individuals eligible for participation in the program are teachers, faculty, administrators and related support staff associated with local education agencies, colleges, and universities, employees of State education, environmental protection, and natural resource departments, and employees of not-for-profit organizations involved in environmental education activities and issues.

(2) Environmental education professionals shall be selected for participation in the program based on applications which shall be in such form as the Administrator determines to be appropriate.

(3) In selecting individuals to participate in the program, the Administration shall provide for a wide geographic representation and a mix of individuals working at primary, secondary, postsecondary levels, and with appropriate other agencies and departments.

(4) Individuals selected for participation in the program may be provided with a stipend to cover travel and accommodations in such amounts as the Administrator determines to be appropriate.

### SEC. 6. ENVIRONMENTAL EDUCATION GRANTS.

(a) The Administrator may enter into a cooperative agreement or contract, or provide financial assistance in the form of grants to support projects to design, demonstrate, and disseminate practices, methods, or techniques related to environmental education and training.

(b) Activities eligible for grant support pursuant to this section shall include, but not be limited to—

(1) design and demonstration of environmental curricula, including development of educational tools and materials;

(2) design and demonstration of field methods, practices, and techniques, including assessment of environmental and ecological conditions and analysis of environmental pollution problems;

(3) conduct of special projects to understand and assess a specific environmental issue or a specific environmental problem; and

(4) support of training or related education for personnel, including teachers, faculty, or administrative staff.

(c) In making grants pursuant to this section, the Administrator shall give priority to those proposed projects which will develop—

(1) a new or significantly improved environmental education practice, method, or technique;

(2) an environmental education practice, method, or technique which may have wide application;

(3) an environmental education practice, method, or technique which addresses a skill or scientific field identified as a priority in the report developed pursuant to section 9(e) of this Act;

(4) an environmental education practice, method or technique which addresses an environmental issue which, in the judgment of the Administrator, is of a high priority; and

(5) an evaluation of the content and effectiveness of environmental education and training programs and materials.

(d) The program established by this subsection shall include solicitations for projects, selection of suitable projects from among those proposed, supervision of such projects, evaluation of the results of projects, and dissemination of information on the effectiveness and feasibility of the practices, methods, techniques and processes. The Administrator shall publish regulations to assure satisfactory implementation of each element of the program authorized by this subsection.

(e) Within one hundred and eighty days after the date of enactment of this Act, and no less often than every twelve months thereafter, the Administrator shall publish a solicitation for environmental education grants. The solicitation notice shall prescribe the information to be included in the proposal and other information sufficient to permit the Administrator to assess the project.

(f) Any local education agency, college or university, State education agency or environmental agency, or not-for-profit organization may submit an application to the Administrator in response to the solicitations required by subsection (e) of this section.

(g) Each project under this section shall be performed by the applicant, or by a person satisfactory to the applicant, under the supervision of the Administrator.

(h) Federal funds for any demonstration project under this section shall not exceed 75 per centum of the total cost of such project. For the purposes of this section, the non-Federal share of project costs may be provided by inkind contributions and other noncash support. In cases where the Administrator determines that a proposed project merits support and cannot be undertaken without a higher rate of Federal support, the Administrator may approve grants under this section with a matching requirement other than that specified in this subsection, including full Federal funding.

(i) Grants under this section shall not exceed $100,000. In addition, 25 per centum of all funds obligated under this section in a fiscal year shall be for grants of not more than $5,000.

## SEC. 7. ENVIRONMENTAL INTERNSHIPS.

(a) The Administrator shall, in consultation with the Office of Personnel Management and other appropriate Federal agencies, provide for internships by postsecondary level students with agencies of the Federal Government.

(b) The purpose of internships pursuant to this section shall be to provide college level students with an opportunity to work with professional staff of Federal agencies involved in environmental issues and thereby gain an understanding and appreciation of the skills and abilities appropriate to such professions.

(c) The Administrator shall, to the extent practicable, support not less than one hundred and fifty internships each year.

(d) The internship program shall be managed by the Office of Environmental Education. Interns may serve in appropriate agencies of the Federal Government including, but not limited to, the Environmental Protection Agency, the Fish and Wildlife Service, and the National Oceanic and Atmospheric Administration. Council on Environmental Quality, Soil Conservation Service, United States Forest Service, National Park Service, and the Bureau of Land Management.

(e) Interns shall be hired on a temporary, full-time basis for not to exceed six months and shall be compensated at a rate of not less than GS–4 and not more than GS–7. Federal agencies hiring interns shall provide the funds necessary to support salaries and related costs.

(f) Individuals eligible for participation in the internship program are students enrolled at accredited colleges or universities who have successfully completed not less than four courses or the equivalent in environmental sciences or studies, as determined by the Administrator.

(g) Students shall be selected for internships based on applications which shall be in such form as the Administrator considers appropriate.

(h) In selecting individuals for internships, the Administrator shall provide for wide geographic representation and representation of a range of professions related to the environment.

### SEC. 8. ENVIRONMENTAL EDUCATION AWARDS.

(a) The Administrator shall provide for a series of national awards recognizing outstanding contributions to environmental education.

(b) National environmental awards shall include—

(A) The "Theodore Roosevelt Award" to be given in recognition of an outstanding career in environmental education, teaching, or administration;

(B) The "Henry David Thoreau Award" to be given in recognition of an outstanding contribution to literature on the natural environment and environmental pollution problems; and

(C) The "Rachael Carson Award" to be given in recognition of an outstanding contribution in print or film media to public education and information on environmental issues or problems.

(c) Recipients of education awards provided for in subsection (b) shall be nominated by the Environmental Education Advisory Council provided for in section 9 of this Act.

(d) The Regional Administrator of each of the ten regional offices of the Environmental Protection Agency shall present an "Outstanding Environmental Educator Award" on an annual basis to a teacher or faculty member from a local education agency, college or university, or not-for-profit organization in that region in recognition of a specific, outstanding contribution to environmental education during the past year.

## SEC. 9. ENVIRONMENTAL EDUCATION ADVISORY COUNCIL.

(a) There is hereby established a National Environmental Education Advisory Council.

(b) The Council shall advise, consult with, and make recommendations to, the Administrator on matters relating to activities, functions, and policies of the Agency under this Act. The Office of Environmental Education shall provide staff support to the Council.

(c) The Council shall consist of fifteen members appointed by the Administrator after consultation with the Secretary. Three members shall be appointed to represent primary and secondary education (one of whom shall be a classroom teacher); three members shall be appointed to represent colleges and universities; three members shall be appointed to represent not-for-profit organizations involved in environmental education, three members shall be appointed to represent State departments of education and natural resources and three representatives shall be appointed to represent business and industry. A representative of the Secretary, Department of Education, shall serve as an ex-officio member of the Council. The Office of Environmental Education shall provide staff support to the Council.

(d) The Administrator shall provide that members of the Council represent the various geographic regions of the country and that the professional backgrounds of the members include scientific, policy, and other appropriate disciplines.

(e) Each member of the Council shall hold office for a term of three years, except that—

(1) any member appointed to fill a vacancy occurring prior to the expiration of the term for which his predecessor was appointed shall be appointed for the remainder of such term; and

(2) the terms of the members first taking office shall expire as follows: five shall expire three years after the date of enactment of this title, five shall expire two years after such date, and five shall expire one year after such date, as designated by the Administrator at the time of appointment.

(f) The Council shall, after providing for public review and comment, submit to the Congress, within twenty-four months of enactment and biennially thereafter, a report which shall—

(1) describe and assess the extent and quality of environmental education in the Nation's schools, colleges, and universities;

(2) provide a general description of the activities conducted pursuant to this Act and related authorities over the previous two-year period;

(3) summarize major obstacles to improving environmental education and make recommendations for addressing such obstacles; and

(4) identify personnel skills, education, and training needed to respond to current and anticipated environmental problems and make recommendations for actions to assure sufficient educational and training opportunities in these professions.

(g) Members of the Council appointed under this section shall, while attending meetings or conferences of the Council or otherwise engaged in business of the Council, receive compensation and allowances at a rate to be fixed by the Administrator, but not exceeding the daily equivalent of the annual rate of basic pay in effect for grade GS-18 of the General Schedule for each day (including travel time) during which they are engaged in the actual performance of duties vested in the Council. While away from their homes or regular places of business in the performance of services for the Council, members of the Council shall be allowed travel expenses, including per diem in lieu of subsistence, in the same manner as persons employed intermittently in the Government service are allowed expenses under section 5703(b) of title 5 of the United States Code.

(h) Section 14(a) of the Federal Advisory Committee Act relating to termination, shall not apply to the Council.

### SEC. 10. ENVIRONMENTAL EDUCATION TRUST FUND.

(a) There is established in the Treasury of the United States a trust fund to be known as the "Environmental Education Trust Fund", consisting of such amounts as may be transferred to such Trust Fund as provided in this section.

(b)(1) Amounts in the Environmental Education Trust Fund shall be available, as provided in appropriation Acts, to the Administrator for the purposes of making expenditures to carry out this Act, but not in excess of $15,000,000 for each fiscal year.

(2) Of such sums appropriated in a fiscal year, not more than 40 per centum shall be available for the activities of the Office of Environmental Education, not more than 30 per centum shall be available for the operation of the Environmental Education and training program, and not more than 30 per centum shall be available for environmental education grants.

(c) There are hereby authorized to be appropriated to the Environmental Education Trust Fund, 50 per centum of any penalty paid in response to Federal enforcement action pursuant to the Clean Water Act, the Clean Air Act, the Solid Waste Disposal Act, the Toxic Substances Control Act, the Federal Insecticide, Fungicide, and Rodenticide Act, and the Safe Drinking Water Act unless any such penalty is required to be used for another purpose pursuant to Federal law.

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